POTOMAC YARD METRORAIL STATION
ENVIRONMENTAL IMPACT STATEMENT

DRAFT

Phase II Environmental Site Assessment

February 2016

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1.0 INTRODUCTION

The Federal Transit Administration (FTA), as the lead federal agency, and the City of Alexandria, as the project sponsor and joint lead agency, are preparing a Final Environmental Impact Statement (Final EIS) in accordance with the National Environmental Policy Act (NEPA) for the proposed Potomac Yard Metrorail Station (PYMS). The Final EIS is being prepared in cooperation with the Washington Metropolitan Area Transit Authority (WMATA) and the National Park Service (NPS).

This document is a Phase II Environmental Site Assessment (ESA) of Recognized Environmental Concerns (RECs) which were previously identified in a Phase I ESA to support findings in the Draft EIS. As described in the Phase I ESA, the potential impacts of the Preferred Alternative on RECs would occur during construction activities. Therefore, the Phase II ESA focused on the limits of soil disturbance predicted during construction of the Preferred Alternative and was primarily limited to the depth of likely associated soil disturbance. At the conclusion of construction for the Preferred Alternative, the site would be returned to its current condition or better, as discussed in Section 3.25 of the FEIS. All work has been completed pursuant to American Society of Testing and Materials (ASTM) *E1903 - 11 Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*.

This Phase II ESA was conducted as part of the Final EIS to assess the nature of potential contamination at the RECs at the site of the Preferred Alternative. The Phase II ESA comprised installation of soil borings and collection of soil samples for laboratory analysis of potential contaminants of concern. A discussion of the Phase II ESA methodology, findings, and potential impacts to the construction of the Potomac Yard Metrorail Station project is provided.

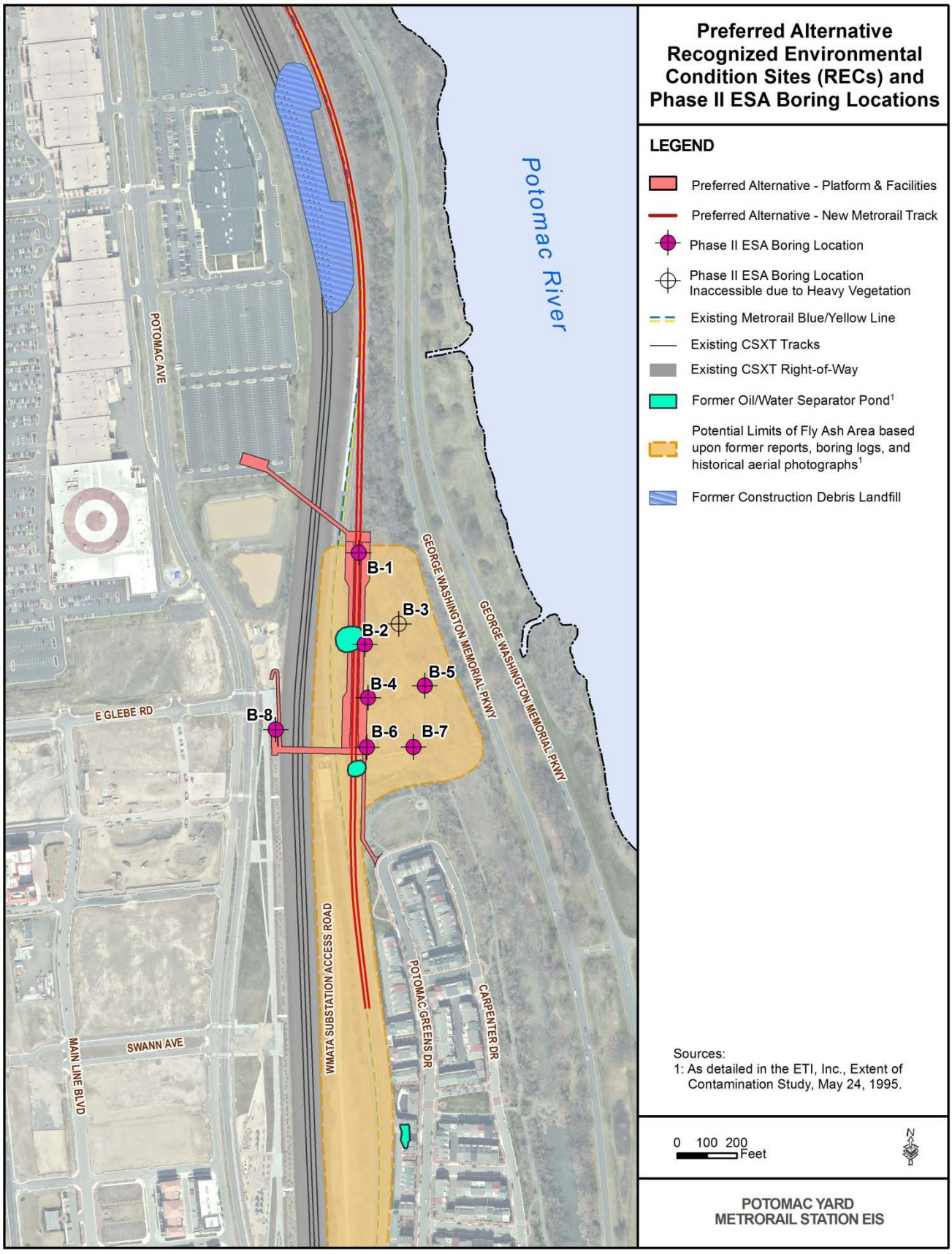
The Phase II ESA report is organized as follows:

- Section 1 provides a description of the Preferred Alternative and Phase II ESA study area;
- Section 2 summarizes the Phase I ESA findings and RECs at the Preferred Alternative site;
- Section 3 provides the findings of Phase II ESA at the Preferred Alternative site;
- Section 4 describes potential impacts of the Preferred Alternative based on Phase II ESA findings;
- Section 5 provides the qualifications of the authors;
- Section 6 lists preparers for the Phase II ESA; and
- Section 7 lists technical references.

1.1 Preferred Alternative Location and the Phase II ESA Study Area

The Preferred Alternative is located along and just east of the existing WMATA Metrorail Blue and Yellow Lines, west of the George Washington Memorial Parkway, and north of the Potomac Greens neighborhood in Potomac Greens Park within the City of Alexandria. **Figure 1-1** on the following page illustrates the Preferred Alternative and the Phase II ESA Study Area, which includes areas identified with RECs within and adjacent to the limits of disturbance and construction for the project. The figure also shows the boring locations where sampling was conducted.

Figure 1-1: Preferred Alternative Recognized Environmental Condition Sites (RECs) and Phase II Boring Locations



2.0 SITE SETTING

2.1 Surrounding Land Use

The surrounding land use to the west and south is a densely populated area, which continues to be developed for residential and commercial uses. A new plan for the redevelopment of the Potomac Yard Shopping Center (formerly within the Potomac Yard railroad yard) was adopted by the City of Alexandria in 2010. The new redevelopment is planned to contain 7.5 million square feet of office, retail, and residential development, as well as open space (http://alexandriava.gov/PotomacYard).

To the east and north of the project site are parkland and open space associated with the George Washington Memorial Parkway.

2.2 Surface Waters and Hydrology

Drainage patterns in the vicinity of the Preferred Alternative are controlled principally by topographic relief and urbanization. In urban settings, such as Potomac Yard, storm water is managed predominantly in subsurface pipes and drainage ponds. Drainage from the Potomac Yard area of the site west of the CSXT railroad tracks generally flows to Four Mile Run (to the north of the project site), which in turn discharges to the Potomac River, and drainage from the project site east of the CSXT railroad tracks generally flows directly to the Potomac River. The Potomac River flows south and discharges to the Chesapeake Bay.

Previous studies at the site have shown that shallow groundwater occurs at the former Potomac Yard rail yard site under an unconfined water table and perched water table conditions. The unconfined water table occurs at depths ranging from approximately 10 feet to 25 feet below ground surface (bgs). The perched water table is localized and may be seasonal in nature. The perched groundwater was encountered at depths of four to six feet bgs. The water table groundwater elevations in monitoring wells measured during the previous Extent of Contamination Study (ECS, 1995) generally ranged from about five feet to 33 feet mean sea level (msl)

2.3 Geology and Soils

The site is located near the western edge of the Coastal Plain physiographic province. The “Fall Line”, located less than 5 miles west of the study area, marks the boundary between the Coastal Plain and the Piedmont physiographic provinces. The Coastal Plain is an eastward-thickening wedge of sedimentary deposits overlying igneous and metamorphic bedrock. The bedrock dips eastward from the Piedmont at approximately 125 feet per mile. The Coastal Plain sediments consist of clays, silts, sands, and gravels deposited in river and marine environments.

The sedimentary deposits of the Coastal Plain in the vicinity of the study area are the Potomac Group of Cretaceous age. The Potomac Group is subdivided into three formations. In ascending order, these are the Patuxent Formation (Patuxent), the Arundel Clay Formation (Arundel), and the Patapsco Formation (Patapsco). Overlying the Potomac Group are river terrace and alluvial deposits of Quaternary age identified as the Shirley Formation and fill material.

The geology of the site was delineated from ground surface to the bedrock during previous environmental and geotechnical investigations. The stratigraphic sequence of the study area consists of six units. In descending order, these units include: fill material (ballast-cinder, fly-ash, silt and clay), Shirley Formation, Patapsco Formation, Arundel Clay Formation, Patuxent Formation, and bedrock.

3.0 SUMMARY OF PHASE I ESA FINDINGS OF RECS AT THE PREFERRED ALTERNATIVE

The Potomac Yard is a former rail yard, which was operated by the Richmond Fredericksburg and Potomac (RF&P) railroad from approximately 1906 to 1990. Historic operations at the Site were characterized in the Phase I ESA by reports obtained from the United States Environmental Protection Agency (USEPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)Administrative Record, the Virginia Department of Environmental Quality (VDEQ), and the City of Alexandria Office of Environmental Quality.

The Preferred Alternative is located within the northern portion of the former Potomac Greens Sub-Area of the Potomac Yard rail yard. At the time of rail yard site operations, the former Potomac Greens Sub-Area consisted of approximately 38 acres located to the east of the Metrorail Blue/Yellow Line and west of the George Washington Memorial Parkway. At that time, the area occupied the lowest elevation of Potomac Yard. The area was not used for rail operations. However, former oil/water separator ponds, a fly ash deposition area, and dredge spoils were located in this area. These RECs within the Preferred Alternative site have been remediated or mitigated by risk management methods during previous EPA, VDEQ, and City of Alexandria oversight of historic remedial activities and during more recent redevelopment activities. Risk management methods of contaminants encountered during redevelopment and remedial activities have included measures such as removal of the oil/water separator ponds and dredge spoils and capping impacted soils in place.

The RECs described below were identified as having the potential for residual contamination at the Preferred Alternative site and were investigated during the Phase II ESA. **Figure 1-1** shows the locations of RECs and the location of the Phase II study area and soil borings..

3.1 Ballast

Based upon multiple environmental assessment reports completed for the former Potomac Yard rail yard site, much of the shallow fill used to level the rail yard appears to have been cinder ballast. The fill material adjacent to and underneath the existing track likely contains ballast. Much of the ballast material at the former Potomac Yard has been removed from areas no longer occupied by track. However, ballast can still be sporadically encountered in previously undisturbed areas or at undisturbed depths. Previous analysis at Potomac Yard indicates that ballast can contain significant concentrations of metals, including arsenic, lead, and copper.

3.2 Former Oil/Water Separator Ponds

Three oil/water separator ponds were located in the north, middle, and south portions of Potomac Greens and collected surface water containing grease and spilled fuel oil from refueling and maintenance operations in the Central Operations Area, North Yard, and South Yard Sub-Areas of the former rail yard. These ponds discharged into the Potomac River through drainage channels. During 1977 and 1978, the three oil/water separator ponds were moved from their original locations to clear a path for the Metrorail Yellow Line. The original oil/water separator ponds were then filled with soil and fly ash. On the downstream side of each pond, wooden baffles served to retain the floating oil and grease in the ponds while allowing water to discharge. Oil and grease were periodically removed and properly disposed off-site (ECS,1995).

After 1990, when locomotive servicing operations were discontinued at the rail yard, the three oil/water separator ponds collected only stormwater runoff from portions of the rail yard and from the City Of Alexandria system (across U.S. Route 1) to the west. During 1993, RF&P removed the three ponds from Potomac Greens. The area of the former southern most separator pond was also further redeveloped during the Potomac Greens construction. Prior to pond removal, RF&P estimated these ponds to be approximately 2,570 square feet (Middle Pond), 3,200 square feet (North Pond), and 3,370 square feet (South Pond) in area and five to eight feet deep.

The water was pumped from each pond and the sediments were solidified with kiln dust and disposed off-site. The soil beneath the ponds was excavated until the concentration of total petroleum hydrocarbons

(TPH) in the underlying soil was less than 100 milligrams per kilogram (mg/kg). The contaminated soil was then properly disposed of offsite. The areas once occupied by the ponds were subsequently refilled under the oversight of VDEQ (Roy F. Weston, 1996). Two of the former oil/water separator ponds are located on or in near proximity to the Preferred Alternative proposed station building location as shown on **Figure 1-1.** The area of the third oil/water separator pond was also subsequently redeveloped during construction of the Potomac Greens townhome development.

3.3 Former Dredge Spoils Area

Dredge spoils from the mouth of Four Mile Run were placed at the Potomac Greens Sub-Area by the U.S. Army Corps of Engineers (USACE) in 1983. USACE constructed a rectangular impoundment located in the south-central portion of Potomac Greens to contain the dredged material. The spoils were deposited within a 10 to 15 foot-high embankment and distributed in a layer that varied from one to 12 feet in thickness. The dredge spoils were removed from the site during the redevelopment of the Potomac Greens Sub-Area.

3.4 Former Fly Ash Deposition Areas

Geotechnical investigations within the Potomac Greens Sub-Area identified a widespread layer of fly ash, five to 20 feet thick, deposited throughout the Sub-Area. The source of this fly ash was reported to be Potomac Electric Power Company (PEPCO). Historical aerial photographs indicate most of this fill was deposited between the mid-1950s and 1963. The fly ash from the disposal area was removed and properly disposed during the redevelopment of the Potomac Greens Sub-Area (ETI, Inc., 1995). The approximate extent of the former fly ash disposal area within the Phase II ESA study area is shown on **Figure 1-1.**

Previous fly ash sample laboratory analysis conducted during site-wide environmental assessments indicate that most samples analyzed for metals had detectable concentrations. The metals arsenic, lead, and copper were detected most frequently. Arsenic was detected at an average concentration of 106 mg/kg, lead was detected at an average concentration of 34 mg/kg, and copper was detected at an average concentration of 70 mg/kg (ETI, Inc., 1995).

Previous risk management methods during site development at Potomac Yard have included risk assessment of arsenic concentrations in soil and fly ash to construction/utility workers during site development. These risk evaluations typically follow Virginia Voluntary Remediation Program (VRP) risk guidance. Previous risk calculations provided in the Preliminary Site-Development Risk Assessment for Potomac Greens (ECS, 2003) of arsenic in fly ash and soil to potential construction/utility workers at Potomac Yard did not indicate an unacceptable risk to these site workers.

3.5 Potential Construction Debris Landfill

The 1995 CERCLA Study identified a construction debris landfill in the area west of the Metrorail tracks near the current site of the movie theater. The construction debris landfill is noted to have been removed to an off-site landfill during redevelopment in 1977. Subsurface debris were encountered during construction of a sewer line for Landbay F (the Potomac Yard Shopping Center) in the former historic “stock pen” area, also located in this portion of the property.

3.6 Contaminated Groundwater

The CERCLA analyses detected contaminants in ground water. The groundwater analyses focused on the metals most commonly associated with ballast: arsenic, copper, and lead. The 1995 CERCLA analysis identified metals and residual petroleum hydrocarbons present in the groundwater at the property.

3.7 Contaminated Soil

The CERCLA analyses detected contaminants in soil. The 1995 CERCLA analysis identified metals and petroleum hydrocarbons present in the soil at the property.

4.0 SUMMARY OF THE PHASE II ESA FINDINGS

The previous Phase I ESA findings found that former RECs within the study area had either been remediated in accordance with USEPA or VDEQ approvals or had been mitigated by risk management methods during subsequent redevelopment. However, the potential for residual contamination at these RECs, especially in undeveloped areas of the study area, was present.

The level of mitigation and/or remediation which could be required in the study area for the Potomac Yard Metrorail Station project is dependent upon the degree of potential residual contamination and how it relates to the construction of the project. Therefore, a Phase II ESA was recommended.

4.1 Summary of Phase II ESA Methodology and Sampling

The Phase II ESA borings were located in or adjacent to RECs identified in the Phase I ESA and summarized above. Prior to Phase II ESA field work, a Right of Entry Agreement was negotiated with the City of Alexandria to conduct the soil borings and sampling at the property. The Right of Entry Agreement to conduct the Phase II ESA soil borings was signed in October 2015.

Prior to soil boring activity, utility clearance of all soil boring locations was conducted by Miss Utility of Virginia. Soil samples were collected via a “direct-push” technology drill rig. The soil samples were collected in 4-foot long acetate liners directly pushed into the ground by the drill rig. The soil samples were screened in the field for volatile organic compounds (VOCs) with a photoionization detector (PID) immediately upon opening the soil sample liners. The lithology and PID readings for each soil core were recorded in the field log book. Recorded information also included depth interval, moisture, odors (if present), the presence of groundwater, and depth that groundwater was encountered.

A total of seven borings (B-1 through B-8) were completed at the Preferred Alternative during October 15 and October 16, 2015. One scheduled boring (B-3) could not be completed due to thick woody vegetation limiting access to that area of the site. A total of ten soil samples were obtained from the soil borings. All the soil borings encountered fly ash within 2 feet of the ground surface. All soil borings encountered groundwater saturated fly ash at depths ranging from 4 to 6 feet below ground surface.

No significant VOC measurements above background were observed in borehole soils screened in the field for VOCs with a PID. No field indications of contaminated soil, such as discoloration or odors, were observed at any of the borehole locations with the exception of borehole location B-2. Soil boring B-2 is located in the former oil/water separator in the northern portion of the Preferred Alternative. A petroleum odor, dark staining, and ballast material were observed at the bottom of the fly ash fill at 7.5 to 8.0 feet below ground surface. A brown-grey mottled clay silt, which likely represents the original ground surface before emplacement of fly ash, was encountered at 8 feet below ground.

Due to shallow groundwater encountered at 4 to 6 feet below ground, soil samples were generally collected from 2 to 6 feet below ground, just above the depth to the groundwater.

- One soil sample was collected at each of boring sites B-1, B-4, B-5, B-6, and B-8.
- Due to impacted soils observed at 7.5 to 8.0 feet at boring B-2, soil samples were collected at 3 to 5 feet, 6 to 8 feet, and 10 to 12 feet below ground.
- Two soil samples were obtained at boring site B-7: a representative surface soil sample (B-7-0-2) as well as a soil sample at the depth of groundwater (B-7-3-5). The focus of the Phase II ESA soil sampling was subsurface fill (fly ash and ballast) and soil; however, a surface soil sample was taken at this location to provide a complete data set for analysis.

The laboratory analysis consisted of the following:

- All ten soil samples were analyzed for volatile organic compounds (VOCs), total petroleum hydrocarbon-diesel range organics (TPH-DRO), and total metals concentrations.

- Based on locations of the former oil/water separator ponds and fly ash, six of the soil samples were analyzed for polychlorinated biphenols (PCBs).

- Based on field screening of samples and fly ash encountered, two of the soil samples were selected for the analysis of metals by the toxicity characteristics leaching procedure (TCLP), which determines if soils exhibit toxic characteristics which would require a hazardous waste listing to inform soil management and disposal requirements.

- Total metals soil results were also compared with toxicity regulatory criteria using what is referred to as the "20 times rule" for waste characterization. In accordance with Section 1.2 of the TCLP (Method 1311), the 20 times rule can be applied to soil samples by dividing the total metals analysis constituent concentration by 20 and then comparing the resulting concentration to the toxicity regulatory limit. If no theoretical concentration equals or exceeds the toxicity regulatory limit, the soil cannot exhibit toxicity characteristics.

4.2 Summary of Phase II ESA Findings

A summary of the analysis conducted for each soil sample, including the compounds and metals detected by the laboratory analysis, is provided in **Table 4-1**. The laboratory results are compared to EPA risk screening levels (RSLs) for commercial and industrial property use. The complete laboratory report with all laboratory analysis and sample chain of custody documentation is provided in **Appendix B**. Photographs of Phase II ESA field work, including select soil samples (referenced by the laboratory sample numbers used in Appendix B), are provided in **Appendix C**.

Three VOCs (acetone, 2-butanone, and carbon disulfide) were detected in the soil samples. Acetone was detected in eight out of ten samples, 2-butanone was detected in two samples, and carbon disulfide was detected in one sample. The concentrations of the VOCs in soil are below the EPA RSLs. These VOCs are also often considered to be common laboratory contaminants and not associated with samples.

The metals arsenic, barium, cadmium, chromium, lead, selenium, and mercury were detected in all soil samples. Additionally, silver was detected in one soil sample (B-2-10-12). Arsenic exceeded the EPA RSL of 3 mg/kg in all ten samples. No other metal exceeded the EPA RSL. Average concentrations of metals were; arsenic at 115 mg/kg, chromium at 28 mg/kg, lead at 78 mg/kg, selenium at 11 mg/kg, and mercury at 0.081 mg/kg. As noted above in the Phase I ESA findings, previous risk management methods during site development at Potomac Yard have included risk assessment of arsenic concentrations in soil and fly ash to construction/utility workers during site development. Previous risk calculations of arsenic in fly ash and soil to potential construction/utility workers at Potomac Yard did not indicate an unacceptable risk to these site workers (ECS, 2003). However, the average arsenic concentration detected in the Phase II ESA subset of samples is slightly higher than the previous average concentration.

TPH-DRO (total petroleum hydrocarbon-diesel range organics) was detected at 6,100 mg/kg in the soil sample submitted from soil and ballast material with a petroleum odor at the bottom of the fly ash fill at 7.5 to eight feet below ground at soil boring B-2. Soil samples taken at three to five feet and 10 to 12 feet below ground at this boring did not detect TPH-DRO. A TPH concentration in soil that is greater than 100 mg/kg is considered by VDEQ petroleum guidance to be indicative of a petroleum release. However, based on the site environmental remedial history and the Phase II ESA soil samples collected above and below this sample, this concentration is likely representative of an isolated residual petroleum contamination at the bottom of the former oil/water separator pond which was previously remediated at his location.

One PCB (arochlor-1260) was detected in two samples at levels not exceeding the RSL. The previous environmental assessment identified former transformers with PCBs in the former Potomac rail yard, which had been remediated under CERCLA and VDEQ oversight. Select PCB analysis was conducted during the Phase II analysis to document that residual PCBs were not present at the former oil/water separator ponds, fly ash, or soil which could potentially be excavated during redevelopment activities.

Table 4-1: Phase II ESA Detected Analytes

Soil Sample / Contaminant Analyzed	EPA Commercial/ Industrial RSL	Borehole/Sample Location*									
		B-1	B-2			B-4	B-5	B-6	B-7		B-8
Sample Characteristics											
Sample ID #	-	B-1-2-4	B-2-3-5	B-2-6-8	B-2-10-12	B-4-3-5	B-5-2-4	B-6-3-5	B-7-0-2	B-7-3-5	B-8-2-4
Depth Interval (ft bgs)	-	2 - 4	3 - 5	6 - 8	10 - 12	3 - 5	2 - 4	3 - 5	0 - 2	3 - 5	2 - 4
Media	-	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
VOCs by SW-846 8260B (ug/kg)											
Acetone	670,000,000	52	5 J	160	7 J	N.D.	25 J	26	20 J	91	20 J
2-Butanone	190,000,000	N.D.	N.D.	20	N.D.	N.D.	N.D.	N.D.	N.D.	5 J	N.D.
Carbon Disulfide	3,500,000	N.D.	N.D.	4 J	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Metals by SW-846 6010B (mg/kg)											
Arsenic	3	**116**	**220**	**51.2**	**5.26**	**208**	**233**	**99.8**	**119**	**78.3**	**22.4**
Barium	220,000	681	1,180	169	67.3	1,110	1,710	1,000	1,060	1,610	103
Cadmium	9,300	0.588 J	0.723	0.572 J	0.893 J	0.492 J	1.11	0.664	0.891	0.615 J	0.526 J
Chromium	n.p.	22.6	30.1	20.6	25.3	33.1	45.8	26.1	30.0	20.1	30.6
Lead	800	25.2	31.4	480	17.5	32.3	56.6	29.5	36.2	18.9	53.5
Selenium	5,800	7.24	13.9	11.0	9.71	11.8	11.5	10.1	17.2	11.6	3.49
Silver	5,800	N.D.	N.D.	N.D.	5.13	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury	40	0.070 J	0.083 J	0.264	0.012 J	0.095 J	0.085 J	0.046 J	0.070 J	0.037 J	0.046 J
PCBs by SW-846 8082 (ug/kg)											
PCB-1260	990	25	N.D.	N.D.	N.D.	n.a.	N.D.	15 J	n.a.	n.a.	n.a.
TPH-DRO by SW-846 8015B (mg/kg)											
TPH-DRO soil C10-C28	n.p.	N.D.	N.D.	**6,100**	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

* Borehole Location and Sampling Notes:
Proposed Phase II ESA borehole location B-3 was inaccessible due to heavy vegetation, and no sample was taken.
Due to impacted soils observed at boring B-2, soil samples were collected at multiple depths.
An additional soil sample was collected at B-7 to provide a representative surface level sample.

Key:
VOC = volatile organic compound
PCBs = polychlorinated biphenyls
TPH-DRO = total petroleum hydrocarbon-diesel range organics
SW-846 number references the EPA laboratory test method used.
(mg/kg) = milligrams per kilogram

(ug/kg) = micrograms per kilogram
Mercury analytical results have been rounded to three decimal places.
N.D. = non detect
n.a. = not analyzed
n.p. = not published
J = estimated value between the Method Detection Level (MDL) and Limits of Quantitation (LOQ)
RSLs = USEPA Commercial / Industrial Soil Regional Screening Levels (Revised June 2015)
Bold = Sample result greater than USEPA screening level, or greater than 100 mg/kg TPH-DRO in accordance with VDEQ Storage Tank Program Technical Manual, 2011.

Based on previous Potomac Yard environmental assessment and redevelopment reports, metals are noted to be a primary contaminant of concern in soil and fill. In some cases, metals exceeded the regulatory level that required the soil to be identified as hazardous waste in accordance with Federal Code of Regulations 40 CFR 261.24, Table 1. Hazardous waste characteristics include corrosivity, reactivity, ignitability, and other similar properties. Therefore, soil samples from the most impacted interval observed through field screening (B-2-6-8) and representative of fly ash (B-6-3-5) were submitted for toxicity characteristic leaching procedure (TCLP) for metals. The TCLP test method simulates typical solid waste landfill conditions and predicts whether toxic chemicals in the waste are likely to leach and eventually impact surface water or groundwater. The results of the TCLP metals analysis were below the regulatory criteria requiring a hazardous waste listing. **Table 4-2** lists the TCLP metals analysis results and toxicity regulatory criteria.

Table 4-2 also compares previous total metals soil results (Table 4-1) with toxicity regulatory criteria using what is referred to as the “20 times rule” for waste characterization. In accordance with Section 1.2 of the TCLP (Method 1311), the 20 times rule can be applied to soil samples by dividing the total metals analysis constituent concentration by 20 and then comparing the resulting concentration to the toxicity regulatory limit (Table 4-2). If no theoretical concentration equals or exceeds the toxicity regulatory limit, the soil cannot exhibit toxicity characteristics. No metal concentrations exceeded the regulatory limit for toxicity using the 20 times rule for waste characterization. Therefore, no hazardous waste listing for soil or fill is anticipated.

Additional hazardous waste characteristic analysis of excavated soil and fly ash (i.e., corrosivity, reactivity, ignitability, etc.,) may be required for disposal purposes during site development in accordance with 40 CFR 261.24 and Virginia solid waste management regulations. However, based on the Phase II ESA sample analysis and previous environmental assessment sampling conducted at the former Potomac Greens Sub-Area, the fly ash and soil at the Preferred Alternative site are anticipated to be non-hazardous for disposal purposes.

Table 4-2: Phase II ESA Metal Results Compared to the Toxicity Characteristic Regulatory Level

Soil Sample / Contaminant Analyzed	Toxicity Characteristic Regulatory Level (mg/L)	Borehole/Sample Location									
		B-1	B-2			B-4	B-5	B-6	B-7		B-8
Sample Characteristics											
Sample ID	-	B-1-2-4	B-2-3-5	B-2-6-8	B-2-10-12	B-4-3-5	B-5-2-4	B-6-3-5	B-7-0-2	B-7-3-5	B-8-2-4
Depth Interval (ft bgs)	-	2 - 4	3 - 5	6 - 8	10 - 12	3 - 5	2 - 4	3 - 5	0 - 2	3 - 5	2 - 4
Media	-	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Total Metals Analytical Results Using the 20 Times Rule of Waste Characterization (mg/kg)											
Arsenic	5	5.8	11	2.56	0.263	10.4	11.65	4.99	5.95	3.915	1.12
Barium	100	34.05	59	8.45	3.365	55.5	85.5	50	53	80.5	5.15
Cadmium	1	0.029 J	0.0362	0.029 J	0.045 J	0.025 J	0.056	0.033	0.045	0.031 J	0.026 J
Chromium	5	1.13	1.505	1.03	1.265	1.655	2.29	1.305	1.5	1.005	1.53
Lead	5	1.26	1.57	24	0.875	1.615	2.83	1.475	1.81	0.945	2.675
Selenium	1	0.362	0.695	0.55	0.486	0.59	0.575	0.505	0.86	0.58	0.175
Silver	5	N.D.	N.D.	N.D.	0.257	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury	0.2	0.003 J	0.004 J	0.013	0.001 J	0.005 J	0.004 J	0.002 J	0.004 J	0.002 J	0.002 J
TCLP Metals Results SW-846/1311(mg/L)											
Arsenic	5	-	-	0.084	-	-	-	0.212	-	-	-
Barium	100	-	-	3.6	-	-	-	3.14	-	-	-
Cadmium	1	-	-	0.001 J	-	-	-	0.003 J	-	-	-
Chromium	5	-	-	0.009 J	-	-	-	0.008 J	-	-	-
Lead	5	-	-	N.D.	-	-	-	0.008 J	-	-	-
Selenium	1	-	-	0.021	-	-	-	0.081	-	-	-
Silver	5	-	-	N.D.	-	-	-	N.D.	-	-	-
Mercury	0.2	-	-	N.D.	-	-	-	N.D.	-	-	-

Key:
TCLP = Toxicity Characterization Leaching Procedure
SW-846 number references the EPA laboratory test method used.
(mg/kg) = milligrams per kilogram

(mg/L) = milligrams per litre
N.D. = non detect
J = estimated value
Toxicity Characteristic Regulatory Level taken from Table 1 of 40 CFR 261.24
Cadmium, selenium, and mercury analytical results have been rounded to three decimal places.

5.0 POTENTIAL IMPACTS TO THE PREFERRED PYMS BASED ON PHASE II ESA FINDINGS

The Preferred Alternative has the potential to excavate fill material consisting of ballast, fly ash, and soil with potentially elevated metals (arsenic). Residual petroleum may also be encountered in subsurface fill material near the location and depth of former oil/water separator ponds. However, the project would not result in long-term or permanent adverse effects due to mitigation of risks through engineering controls and other measures that would be used during construction.

5.1 Contaminated Fill Material and Soil Excavation and Disposal

Subsurface soil and fill material consisting primarily of fly ash, soil, and some ballast with elevated metals content (arsenic), and residual petroleum-impacted soils near the former oil/water separator ponds, have been identified within the limits of disturbance (LOD) for the Preferred Alternative. No soils exhibiting hazardous waste characteristics were identified. Appropriate management on site and disposal off-site of these impacted fill materials would be conducted in accordance with applicable Virginia solid waste management regulations.

5.2 Contaminated Groundwater Dewatering

Based on Phase II ESA analysis of soils and previous site-wide environmental assessment reports, shallow groundwater in the vicinity of the Preferred Alternative is likely contaminated with residual levels of petroleum hydrocarbons and metals. The groundwater depth should be evaluated at the project design phase to identify the necessity of dewatering, groundwater control requirements (if dewatering is required), and disposal or treatment requirements for contaminated groundwater.

The Virginia Pollutant Discharge Elimination System (VPDES) is a set of regulatory standards for discharge of pollutants into surface waters of the Commonwealth. The project would file a notice of intent for coverage under the VPDES construction general permit and related stormwater management program regulations. A site-specific stormwater pollution prevention plan (SWPPP) would be developed, outlining the steps that the contractor would take to comply with the permit, including water quality and quantity requirements, to reduce pollutants in the stormwater runoff from the construction site. The SWPPP also specifies all potential pollutant sources that could enter stormwater leaving the construction site and covers methods used to reduce pollutants in stormwater runoff during and after construction.

5.3 Mitigation of Potential Impacts

Temporary measures taken during construction, such as construction worker health and safety practices, management of excavated contaminated soil, and construction dewatering management and permitting would be implemented during construction to prevent exposure to potential contaminants at RECs. The construction contractor will be informed of site conditions and adequate provision shall be made to clean, control and otherwise alleviate contamination or environmental hazards during construction.

Soil disturbance can be lessened by use of driven piles, shafts, or sheeting, rather than drilled shafts to accommodate any excavations. In areas of the site where pile foundations may need to be installed by alternative methods due to geotechnical and/or vibration concerns, impacts from the generation of potentially contaminated fill, soil, and groundwater would be mitigated in accordance with Virginia Solid Waste Management Regulations (VSWMR) and Virginia Hazardous Waste Management Regulations (VHWMR).

As described in Section 5.2, a site-specific stormwater pollution prevention plan (SWPPP) would be developed, outlining the steps that the contractor would take to comply with the permit, including water quality and quantity requirements, to reduce pollutants in the stormwater runoff from the construction site.

The VSWMR, and the VHWMR, and other hazardous materials regulations described in Section 9 of the Phase I ESA will be followed and documented for on site management of wastes.

6.0 QUALIFICATIONS – LIST OF PREPARERS

6.1 Brendan McGuinness – Senior Environmental Scientist, AECOM, Inc.

BS – Geosciences – State University of New York, 1985
Professional Geologist, 1993, Tennessee, #TN3300

Twenty-five (25) years experience in petroleum and hazardous waste site studies, including site investigation, remedial investigation, and feasibility studies at numerous Department of Defense and commercial sites. Mr. McGuinness provides technical and regulatory support for RCRA, CERCLA, and brownfield projects and supports natural resources and hazardous materials studies under NEPA and other overall environmental review requirements.

7.0 REFERENCES

AECOM, Phase I Environmental Site Assessment and Hazardous & Contaminated Materials Technical Memorandum, August 2012.

American Society of Testing and Materials, E1527-05 *Standard Practice for Environmental Site Assessments*; Phase I Environmental Site Assessment Process.

American Society of Testing and Materials, E1903 - 11 Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.

Engineering Consulting Services, Ltd. *Preliminary Site-Development Risk Assessment Potomac Greens*, April 16, 2003.

Environmental Technology of North America, Inc., *Extent of Contamination Study, Potomac Yard, Alexandria, Virginia*, Volume I, May 24, 1995.

Roy F. Weston, Inc. Off-Site Sediment and Surface Water Sampling Plan, April 24, 1998

U.S. Environmental Protection Agency. Regional Screening Level (RSL) Summary Table, June 2015 (revised). http://semspub.epa.gov/work/03/2218434.pdf, accessed November 18, 2015.

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APPENDIX A:

LIST OF ACRONYMS AND ABBREVIATIONS

APPENDIX A

List of Acronyms and Abbreviations

ASTM	American Society of Testing and Materials
bgs	Below Ground Surface
BMP	Best Management Practice
CSXT	CSX Transportation, Inc.,
DEIS	Draft Environmental Impact Statement
DPT	Direct Push Technology
DRO	Diesel Range Organics
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
FEIS	Final Environmental Impact Statement
ECS	Extent of Contamination Study
ESA	Environmental Site Assessment
FTA	Federal Transit Administration
msl	Mean Sea Level
LOQ	Limits of Quantitation
MDL	Method Detection Level
mg/l	Milligrams per Liter
mg/kg	Milligram per Kilogram
N.D.	Non-detect
n.p.	not-published
ug/l	Micrograms per Liter
NPS	National Park Service
NEPA	National Environmental Policy Act
PEPCO	Potomac Electric Power Company
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
PPB	Parts per Billion
PPM	Parts per Million
PYMS	Potomac Yard Metrorail Station
RECs	Recognized Environmental Conditions
RCRA	Resource Conservation and Recovery Act
RF&P	Richmond Fredericksburg and Potomac
RA	Risk Assessment
RSL	Risk Screening Level
TPH	Total Petroleum Hydrocarbons
TCLP	Toxicity Characterization Leaching Procedure
USACE	United States Army Corps of Engineers
USEPA	United states Environmental Protection Agency
VDEQ	Virginia Department of Environmental Quality
VOC	Volatile Organic Compound
VRP	VDEQ Voluntary Remediation Program
WMATA	Washington Metropolitan Area Transit Authority

APPENDIX B:

LABORATORY ANALYSIS REPORT

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

November 16, 2015

Project: Potomac Yard Metro Station

Submittal Date: 10/16/2015
Group Number: 1601713
SDG: PYM01
PO Number: 60248359 TASK 0008
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
B-6-3-5 Grab Soil	8093379
B-6-3-5 Grab Soil	8093380
B-7-0-2 Grab Soil	8093381
B-7-3-5 Grab Soil	8093382
B-5-2-4 Grab Soil	8093383
B-4-3-5 Grab Soil	8093384
B-2-3-5 Grab Soil	8093385
B-2-6-8 Grab Soil	8093386
B-2-6-8 Grab Soil	8093387
B-2-10-12 Grab Soil	8093388
B-1-2-4 Grab Soil	8093389
B-8-2-4 Grab Soil	8093390

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO AECOM Environment Attn: Brendan McGuinness

Respectfully Submitted,

Barbara A. Weyandt
Specialist

(717) 556-7264

Sample Description: B-6-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093379
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 10:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY635 SDG#: PYM01-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	26	6	17	0.74
10237	Benzene	71-43-2	N.D.	0.4	4	0.74
10237	Bromodichloromethane	75-27-4	N.D.	0.9	4	0.74
10237	Bromoform	75-25-2	N.D.	0.9	4	0.74
10237	Bromomethane	74-83-9	N.D.	2	4	0.74
10237	2-Butanone	78-93-3	N.D.	3	9	0.74
10237	Carbon Disulfide	75-15-0	N.D.	0.9	4	0.74
10237	Carbon Tetrachloride	56-23-5	N.D.	0.9	4	0.74
10237	Chlorobenzene	108-90-7	N.D.	0.9	4	0.74
10237	Chloroethane	75-00-3	N.D.	2	4	0.74
10237	Chloroform	67-66-3	N.D.	0.9	4	0.74
10237	Chloromethane	74-87-3	N.D.	2	4	0.74
10237	Cyclohexane	110-82-7	N.D.	0.9	4	0.74
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	2	4	0.74
10237	Dibromochloromethane	124-48-1	N.D.	0.9	4	0.74
10237	1,2-Dibromoethane	106-93-4	N.D.	0.9	4	0.74
10237	1,2-Dichlorobenzene	95-50-1	N.D.	0.9	4	0.74
10237	1,3-Dichlorobenzene	541-73-1	N.D.	0.9	4	0.74
10237	1,4-Dichlorobenzene	106-46-7	N.D.	0.9	4	0.74
10237	Dichlorodifluoromethane	75-71-8	N.D.	2	4	0.74
10237	1,1-Dichloroethane	75-34-3	N.D.	0.9	4	0.74
10237	1,2-Dichloroethane	107-06-2	N.D.	0.9	4	0.74
10237	1,1-Dichloroethene	75-35-4	N.D.	0.9	4	0.74
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	0.9	4	0.74
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	0.9	4	0.74
10237	1,2-Dichloropropane	78-87-5	N.D.	0.9	4	0.74
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.9	4	0.74
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.9	4	0.74
10237	Ethylbenzene	100-41-4	N.D.	0.9	4	0.74
10237	Freon 113	76-13-1	N.D.	2	9	0.74
10237	2-Hexanone	591-78-6	N.D.	3	9	0.74
10237	Isopropylbenzene	98-82-8	N.D.	0.9	4	0.74
10237	Methyl Acetate	79-20-9	N.D.	2	4	0.74
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.4	4	0.74
10237	4-Methyl-2-pentanone	108-10-1	N.D.	3	9	0.74
10237	Methylcyclohexane	108-87-2	N.D.	0.9	4	0.74
10237	Methylene Chloride	75-09-2	N.D.	2	4	0.74
10237	Styrene	100-42-5	N.D.	0.9	4	0.74
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.9	4	0.74
10237	Tetrachloroethene	127-18-4	N.D.	0.9	4	0.74
10237	Toluene	108-88-3	N.D.	0.9	4	0.74
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.9	4	0.74
10237	1,1,1-Trichloroethane	71-55-6	N.D.	0.9	4	0.74
10237	1,1,2-Trichloroethane	79-00-5	N.D.	0.9	4	0.74
10237	Trichloroethene	79-01-6	N.D.	0.9	4	0.74
10237	Trichlorofluoromethane	75-69-4	N.D.	2	4	0.74
10237	Vinyl Chloride	75-01-4	N.D.	0.9	4	0.74
10237	Xylene (Total)	1330-20-7	N.D.	0.9	4	0.74
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.2	20	1

*=This limit was used in the evaluation of the final result

Sample Description: B-6-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093379
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 10:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY635 SDG#: PYM01-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1221	11104-28-2	N.D.		5.3	20	1
10736	PCB-1232	11141-16-5	N.D.		9.2	20	1
10736	PCB-1242	53469-21-9	N.D.		3.8	20	1
10736	PCB-1248	12672-29-6	N.D.		3.8	20	1
10736	PCB-1254	11097-69-1	N.D.		3.8	20	1
10736	PCB-1260	11096-82-5	15	J	5.7	20	1
GC Miscellaneous	**SW-846 8015B**		**mg/kg**		**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.		4.6	14	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	99.8		0.667	2.30	1
06946	Barium	7440-39-3	1,000		0.385	2.87	5
06949	Cadmium	7440-43-9	0.664		0.0494	0.575	1
06951	Chromium	7440-47-3	26.1		0.113	1.72	1
06955	Lead	7439-92-1	29.5		0.368	1.72	1
06936	Selenium	7782-49-2	10.1		0.954	2.30	1
06966	Silver	7440-22-4	N.D.		0.138	0.575	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0459	J	0.0117	0.117	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 15:09	Angela D Sneeringer	0.74
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 10:15	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 10:15	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 10:15	Client Supplied	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	152950013A	10/27/2015 06:09	Jessica L Miller	1

*=This limit was used in the evaluation of the final result

Sample Description: B-6-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093379
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 10:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY635 SDG#: PYM01-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10497	PCB Microwave Soil Extraction	SW-846 3546	1	152950013A	10/23/2015 08:30	Jessica M Velez	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 18:19	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 01:57	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/23/2015 03:28	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 01:57	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 01:57	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 01:57	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 01:57	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 01:57	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:00	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-6-3-5 Grab Soil
Potomac Yard Metro Station, VA TCLP NVE

LL Sample # TL 8093380
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 10:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PL635 SDG#: PYM01-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals		**SW-846 6010B**	**mg/l**	**mg/l**	**mg/l**	
07035	Arsenic	7440-38-2	0.212	0.0070	0.0200	1
07046	Barium	7440-39-3	3.14	0.00030	0.0050	1
07049	Cadmium	7440-43-9	0.0028 J	0.00030	0.0050	1
07051	Chromium	7440-47-3	0.0079 J	0.0015	0.0150	1
07055	Lead	7439-92-1	0.0078 J	0.0051	0.0150	1
07036	Selenium	7782-49-2	0.0806	0.0082	0.0200	1
07066	Silver	7440-22-4	N.D.	0.0014	0.0050	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1

General Sample Comments

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	153145705001	11/11/2015 10:14	Eric L Eby	1
07046	Barium	SW-846 6010B	1	153145705001	11/11/2015 10:14	Eric L Eby	1
07049	Cadmium	SW-846 6010B	1	153145705001	11/11/2015 10:14	Eric L Eby	1
07051	Chromium	SW-846 6010B	1	153145705001	11/11/2015 10:14	Eric L Eby	1
07055	Lead	SW-846 6010B	1	153145705001	11/11/2015 10:14	Eric L Eby	1
07036	Selenium	SW-846 6010B	1	153145705001	11/11/2015 10:14	Eric L Eby	1
07066	Silver	SW-846 6010B	1	153145705001	11/11/2015 10:14	Eric L Eby	1
00259	Mercury	SW-846 7470A	1	153145713002	11/11/2015 09:47	Damary Valentin	1
05705	ICP-WW/TL, 3010A (tot) - U3	SW-846 3010A	1	153145705001	11/10/2015 23:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153145713002	11/11/2015 01:00	Annamaria Kuhns	1
00947	TCLP Non-volatile Extraction	SW-846 1311	1	15313-2486-094 7A	11/09/2015 12:45	Christina A Huber	n.a.

*=This limit was used in the evaluation of the final result

Sample Description: B-7-0-2 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093381
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 10:45 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY705 SDG#: PYM01-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	20	J	10	28	0.99
10237	Benzene	71-43-2	N.D.		0.7	7	0.99
10237	Bromodichloromethane	75-27-4	N.D.		1	7	0.99
10237	Bromoform	75-25-2	N.D.		1	7	0.99
10237	Bromomethane	74-83-9	N.D.		3	7	0.99
10237	2-Butanone	78-93-3	N.D.		6	14	0.99
10237	Carbon Disulfide	75-15-0	N.D.		1	7	0.99
10237	Carbon Tetrachloride	56-23-5	N.D.		1	7	0.99
10237	Chlorobenzene	108-90-7	N.D.		1	7	0.99
10237	Chloroethane	75-00-3	N.D.		3	7	0.99
10237	Chloroform	67-66-3	N.D.		1	7	0.99
10237	Chloromethane	74-87-3	N.D.		3	7	0.99
10237	Cyclohexane	110-82-7	N.D.		1	7	0.99
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		3	7	0.99
10237	Dibromochloromethane	124-48-1	N.D.		1	7	0.99
10237	1,2-Dibromoethane	106-93-4	N.D.		1	7	0.99
10237	1,2-Dichlorobenzene	95-50-1	N.D.		1	7	0.99
10237	1,3-Dichlorobenzene	541-73-1	N.D.		1	7	0.99
10237	1,4-Dichlorobenzene	106-46-7	N.D.		1	7	0.99
10237	Dichlorodifluoromethane	75-71-8	N.D.		3	7	0.99
10237	1,1-Dichloroethane	75-34-3	N.D.		1	7	0.99
10237	1,2-Dichloroethane	107-06-2	N.D.		1	7	0.99
10237	1,1-Dichloroethene	75-35-4	N.D.		1	7	0.99
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		1	7	0.99
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		1	7	0.99
10237	1,2-Dichloropropane	78-87-5	N.D.		1	7	0.99
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		1	7	0.99
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		1	7	0.99
10237	Ethylbenzene	100-41-4	N.D.		1	7	0.99
10237	Freon 113	76-13-1	N.D.		3	14	0.99
10237	2-Hexanone	591-78-6	N.D.		4	14	0.99
10237	Isopropylbenzene	98-82-8	N.D.		1	7	0.99
10237	Methyl Acetate	79-20-9	N.D.		3	7	0.99
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.7	7	0.99
10237	4-Methyl-2-pentanone	108-10-1	N.D.		4	14	0.99
10237	Methylcyclohexane	108-87-2	N.D.		1	7	0.99
10237	Methylene Chloride	75-09-2	N.D.		3	7	0.99
10237	Styrene	100-42-5	N.D.		1	7	0.99
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1	7	0.99
10237	Tetrachloroethene	127-18-4	N.D.		1	7	0.99
10237	Toluene	108-88-3	N.D.		1	7	0.99
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		1	7	0.99
10237	1,1,1-Trichloroethane	71-55-6	N.D.		1	7	0.99
10237	1,1,2-Trichloroethane	79-00-5	N.D.		1	7	0.99
10237	Trichloroethene	79-01-6	N.D.		1	7	0.99
10237	Trichlorofluoromethane	75-69-4	N.D.		3	7	0.99
10237	Vinyl Chloride	75-01-4	N.D.		1	7	0.99
10237	Xylene (Total)	1330-20-7	N.D.		1	7	0.99
GC Miscellaneous	**SW-846 8015B**		**mg/kg**		**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.		5.7	17	1

*=This limit was used in the evaluation of the final result

Sample Description: B-7-0-2 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093381
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 10:45 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY705 SDG#: PYM01-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	119	0.832	2.87	1
06946	Barium	7440-39-3	1,060	0.481	3.59	5
06949	Cadmium	7440-43-9	0.891	0.0617	0.717	1
06951	Chromium	7440-47-3	30.0	0.141	2.15	1
06955	Lead	7439-92-1	36.2	0.459	2.15	1
06936	Selenium	7782-49-2	17.2	1.19	2.87	1
06966	Silver	7440-22-4	N.D.	0.172	0.717	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0701 J	0.0140	0.140	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	30.3	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 15:32	Angela D Sneeringer	0.99
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 10:45	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 10:45	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 10:45	Client Supplied	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 18:41	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:01	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/23/2015 03:31	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:01	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:01	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:01	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:01	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 02:01	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:10	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1

*=This limit was used in the evaluation of the final result

Sample Description: B-7-0-2 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093381
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 10:45 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY705 SDG#: PYM01-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-7-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093382
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:00 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY735 SDG#: PYM01-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	91		7	20	0.71
10237	Benzene	71-43-2	N.D.		0.5	5	0.71
10237	Bromodichloromethane	75-27-4	N.D.		1	5	0.71
10237	Bromoform	75-25-2	N.D.		1	5	0.71
10237	Bromomethane	74-83-9	N.D.		2	5	0.71
10237	2-Butanone	78-93-3	5	J	4	10	0.71
10237	Carbon Disulfide	75-15-0	N.D.		1	5	0.71
10237	Carbon Tetrachloride	56-23-5	N.D.		1	5	0.71
10237	Chlorobenzene	108-90-7	N.D.		1	5	0.71
10237	Chloroethane	75-00-3	N.D.		2	5	0.71
10237	Chloroform	67-66-3	N.D.		1	5	0.71
10237	Chloromethane	74-87-3	N.D.		2	5	0.71
10237	Cyclohexane	110-82-7	N.D.		1	5	0.71
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		2	5	0.71
10237	Dibromochloromethane	124-48-1	N.D.		1	5	0.71
10237	1,2-Dibromoethane	106-93-4	N.D.		1	5	0.71
10237	1,2-Dichlorobenzene	95-50-1	N.D.		1	5	0.71
10237	1,3-Dichlorobenzene	541-73-1	N.D.		1	5	0.71
10237	1,4-Dichlorobenzene	106-46-7	N.D.		1	5	0.71
10237	Dichlorodifluoromethane	75-71-8	N.D.		2	5	0.71
10237	1,1-Dichloroethane	75-34-3	N.D.		1	5	0.71
10237	1,2-Dichloroethane	107-06-2	N.D.		1	5	0.71
10237	1,1-Dichloroethene	75-35-4	N.D.		1	5	0.71
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		1	5	0.71
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		1	5	0.71
10237	1,2-Dichloropropane	78-87-5	N.D.		1	5	0.71
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		1	5	0.71
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		1	5	0.71
10237	Ethylbenzene	100-41-4	N.D.		1	5	0.71
10237	Freon 113	76-13-1	N.D.		2	10	0.71
10237	2-Hexanone	591-78-6	N.D.		3	10	0.71
10237	Isopropylbenzene	98-82-8	N.D.		1	5	0.71
10237	Methyl Acetate	79-20-9	N.D.		2	5	0.71
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.5	5	0.71
10237	4-Methyl-2-pentanone	108-10-1	N.D.		3	10	0.71
10237	Methylcyclohexane	108-87-2	N.D.		1	5	0.71
10237	Methylene Chloride	75-09-2	N.D.		2	5	0.71
10237	Styrene	100-42-5	N.D.		1	5	0.71
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1	5	0.71
10237	Tetrachloroethene	127-18-4	N.D.		1	5	0.71
10237	Toluene	108-88-3	N.D.		1	5	0.71
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		1	5	0.71
10237	1,1,1-Trichloroethane	71-55-6	N.D.		1	5	0.71
10237	1,1,2-Trichloroethane	79-00-5	N.D.		1	5	0.71
10237	Trichloroethene	79-01-6	N.D.		1	5	0.71
10237	Trichlorofluoromethane	75-69-4	N.D.		2	5	0.71
10237	Vinyl Chloride	75-01-4	N.D.		1	5	0.71
10237	Xylene (Total)	1330-20-7	N.D.		1	5	0.71
GC Miscellaneous	**SW-846 8015B**		**mg/kg**		**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.		5.5	17	1

*=This limit was used in the evaluation of the final result

Sample Description: B-7-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093382
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:00 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY735 SDG#: PYM01-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	78.3	0.781	2.69	1
06946	Barium	7440-39-3	1,610	0.451	3.37	5
06949	Cadmium	7440-43-9	0.615 J	0.0579	0.673	1
06951	Chromium	7440-47-3	20.1	0.132	2.02	1
06955	Lead	7439-92-1	18.9	0.431	2.02	1
06936	Selenium	7782-49-2	11.6	1.12	2.69	1
06966	Silver	7440-22-4	N.D.	0.808	3.37	5
	Reporting limits were raised due to interference from the sample matrix.					
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0365 J	0.0135	0.135	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	27.9	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 15:55	Angela D Sneeringer	0.71
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 11:00	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 11:00	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 11:00	Client Supplied	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 14:12	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:10	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/23/2015 03:34	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:10	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:10	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:10	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:10	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/23/2015 06:23	Tara L Snyder	5
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:16	Damary Valentin	1

*=This limit was used in the evaluation of the final result

Sample Description: B-7-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093382
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:00 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY735 SDG#: PYM01-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-5-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093383
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY524 SDG#: PYM01-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	25	J	10	28	0.92
10237	Benzene	71-43-2	N.D.		0.7	7	0.92
10237	Bromodichloromethane	75-27-4	N.D.		1	7	0.92
10237	Bromoform	75-25-2	N.D.		1	7	0.92
10237	Bromomethane	74-83-9	N.D.		3	7	0.92
10237	2-Butanone	78-93-3	N.D.		6	14	0.92
10237	Carbon Disulfide	75-15-0	N.D.		1	7	0.92
10237	Carbon Tetrachloride	56-23-5	N.D.		1	7	0.92
10237	Chlorobenzene	108-90-7	N.D.		1	7	0.92
10237	Chloroethane	75-00-3	N.D.		3	7	0.92
10237	Chloroform	67-66-3	N.D.		1	7	0.92
10237	Chloromethane	74-87-3	N.D.		3	7	0.92
10237	Cyclohexane	110-82-7	N.D.		1	7	0.92
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		3	7	0.92
10237	Dibromochloromethane	124-48-1	N.D.		1	7	0.92
10237	1,2-Dibromoethane	106-93-4	N.D.		1	7	0.92
10237	1,2-Dichlorobenzene	95-50-1	N.D.		1	7	0.92
10237	1,3-Dichlorobenzene	541-73-1	N.D.		1	7	0.92
10237	1,4-Dichlorobenzene	106-46-7	N.D.		1	7	0.92
10237	Dichlorodifluoromethane	75-71-8	N.D.		3	7	0.92
10237	1,1-Dichloroethane	75-34-3	N.D.		1	7	0.92
10237	1,2-Dichloroethane	107-06-2	N.D.		1	7	0.92
10237	1,1-Dichloroethene	75-35-4	N.D.		1	7	0.92
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		1	7	0.92
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		1	7	0.92
10237	1,2-Dichloropropane	78-87-5	N.D.		1	7	0.92
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		1	7	0.92
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		1	7	0.92
10237	Ethylbenzene	100-41-4	N.D.		1	7	0.92
10237	Freon 113	76-13-1	N.D.		3	14	0.92
10237	2-Hexanone	591-78-6	N.D.		4	14	0.92
10237	Isopropylbenzene	98-82-8	N.D.		1	7	0.92
10237	Methyl Acetate	79-20-9	N.D.		3	7	0.92
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.7	7	0.92
10237	4-Methyl-2-pentanone	108-10-1	N.D.		4	14	0.92
10237	Methylcyclohexane	108-87-2	N.D.		1	7	0.92
10237	Methylene Chloride	75-09-2	N.D.		3	7	0.92
10237	Styrene	100-42-5	N.D.		1	7	0.92
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1	7	0.92
10237	Tetrachloroethene	127-18-4	N.D.		1	7	0.92
10237	Toluene	108-88-3	N.D.		1	7	0.92
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		1	7	0.92
10237	1,1,1-Trichloroethane	71-55-6	N.D.		1	7	0.92
10237	1,1,2-Trichloroethane	79-00-5	N.D.		1	7	0.92
10237	Trichloroethene	79-01-6	N.D.		1	7	0.92
10237	Trichlorofluoromethane	75-69-4	N.D.		3	7	0.92
10237	Vinyl Chloride	75-01-4	N.D.		1	7	0.92
10237	Xylene (Total)	1330-20-7	N.D.		1	7	0.92
Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.		5.5	26	1

*=This limit was used in the evaluation of the final result

Sample Description: B-5-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093383
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY524 SDG#: PYM01-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1221	11104-28-2	N.D.	7.0	26	1
10736	PCB-1232	11141-16-5	N.D.	12	26	1
10736	PCB-1242	53469-21-9	N.D.	5.0	26	1
10736	PCB-1248	12672-29-6	N.D.	5.0	26	1
10736	PCB-1254	11097-69-1	N.D.	5.0	26	1
10736	PCB-1260	11096-82-5	N.D.	7.4	26	1
GC Miscellaneous	**SW-846 8015B**		**mg/kg**	**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.	6.1	18	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	233	0.885	3.05	1
06946	Barium	7440-39-3	1,710	0.511	3.82	5
06949	Cadmium	7440-43-9	1.11	0.0656	0.763	1
06951	Chromium	7440-47-3	45.8	0.150	2.29	1
06955	Lead	7439-92-1	56.6	0.489	2.29	1
06936	Selenium	7782-49-2	11.5	1.27	3.05	1
06966	Silver	7440-22-4	N.D.	0.916	3.82	5
	Reporting limits were raised due to interference from the sample matrix.					
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0848 J	0.0149	0.149	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	34.5	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 16:18	Angela D Sneeringer	0.92
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 11:15	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 11:15	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 11:15	Client Supplied	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	152950013A	10/27/2015 06:20	Jessica L Miller	1

*=This limit was used in the evaluation of the final result

Sample Description: B-5-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093383
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY524 SDG#: PYM01-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10497	PCB Microwave Soil Extraction	SW-846 3546	1	152950013A	10/23/2015 08:30	Jessica M Velez	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 14:34	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:13	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/23/2015 03:41	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:13	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:13	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:13	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:13	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/23/2015 06:26	Tara L Snyder	5
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:18	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-4-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093384
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:30 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY435 SDG#: PYM01-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	9	26	0.93
10237	Benzene	71-43-2	N.D.	0.6	6	0.93
10237	Bromodichloromethane	75-27-4	N.D.	1	6	0.93
10237	Bromoform	75-25-2	N.D.	1	6	0.93
10237	Bromomethane	74-83-9	N.D.	3	6	0.93
10237	2-Butanone	78-93-3	N.D.	5	13	0.93
10237	Carbon Disulfide	75-15-0	N.D.	1	6	0.93
10237	Carbon Tetrachloride	56-23-5	N.D.	1	6	0.93
10237	Chlorobenzene	108-90-7	N.D.	1	6	0.93
10237	Chloroethane	75-00-3	N.D.	3	6	0.93
10237	Chloroform	67-66-3	N.D.	1	6	0.93
10237	Chloromethane	74-87-3	N.D.	3	6	0.93
10237	Cyclohexane	110-82-7	N.D.	1	6	0.93
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	3	6	0.93
10237	Dibromochloromethane	124-48-1	N.D.	1	6	0.93
10237	1,2-Dibromoethane	106-93-4	N.D.	1	6	0.93
10237	1,2-Dichlorobenzene	95-50-1	N.D.	1	6	0.93
10237	1,3-Dichlorobenzene	541-73-1	N.D.	1	6	0.93
10237	1,4-Dichlorobenzene	106-46-7	N.D.	1	6	0.93
10237	Dichlorodifluoromethane	75-71-8	N.D.	3	6	0.93
10237	1,1-Dichloroethane	75-34-3	N.D.	1	6	0.93
10237	1,2-Dichloroethane	107-06-2	N.D.	1	6	0.93
10237	1,1-Dichloroethene	75-35-4	N.D.	1	6	0.93
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	1	6	0.93
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	1	6	0.93
10237	1,2-Dichloropropane	78-87-5	N.D.	1	6	0.93
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	1	6	0.93
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	1	6	0.93
10237	Ethylbenzene	100-41-4	N.D.	1	6	0.93
10237	Freon 113	76-13-1	N.D.	3	13	0.93
10237	2-Hexanone	591-78-6	N.D.	4	13	0.93
10237	Isopropylbenzene	98-82-8	N.D.	1	6	0.93
10237	Methyl Acetate	79-20-9	N.D.	3	6	0.93
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.6	6	0.93
10237	4-Methyl-2-pentanone	108-10-1	N.D.	4	13	0.93
10237	Methylcyclohexane	108-87-2	N.D.	1	6	0.93
10237	Methylene Chloride	75-09-2	N.D.	3	6	0.93
10237	Styrene	100-42-5	N.D.	1	6	0.93
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	6	0.93
10237	Tetrachloroethene	127-18-4	N.D.	1	6	0.93
10237	Toluene	108-88-3	N.D.	1	6	0.93
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	6	0.93
10237	1,1,1-Trichloroethane	71-55-6	N.D.	1	6	0.93
10237	1,1,2-Trichloroethane	79-00-5	N.D.	1	6	0.93
10237	Trichloroethene	79-01-6	N.D.	1	6	0.93
10237	Trichlorofluoromethane	75-69-4	N.D.	3	6	0.93
10237	Vinyl Chloride	75-01-4	N.D.	1	6	0.93
10237	Xylene (Total)	1330-20-7	N.D.	1	6	0.93
GC Miscellaneous	**SW-846 8015B**		**mg/kg**	**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.	5.5	16	1

*=This limit was used in the evaluation of the final result

Sample Description: B-4-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093384
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:30 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY435 SDG#: PYM01-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	208	0.809	2.79	1
06946	Barium	7440-39-3	1,110	0.467	3.49	5
06949	Cadmium	7440-43-9	0.492 J	0.0600	0.697	1
06951	Chromium	7440-47-3	33.1	0.137	2.09	1
06955	Lead	7439-92-1	32.3	0.446	2.09	1
06936	Selenium	7782-49-2	11.8	1.16	2.79	1
06966	Silver	7440-22-4	N.D.	0.167	0.697	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0949 J	0.0131	0.131	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	28.3	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 16:40	Angela D Sneeringer	0.93
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 11:30	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 11:30	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 11:30	Client Supplied	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 16:49	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:17	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/23/2015 03:48	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:17	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:17	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:17	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:17	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 02:17	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:20	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1

*=This limit was used in the evaluation of the final result

Sample Description: B-4-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093384
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:30 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY435 SDG#: PYM01-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093385
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:45 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY235 SDG#: PYM01-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	5	J	4	10	0.37
10237	Benzene	71-43-2	N.D.		0.3	3	0.37
10237	Bromodichloromethane	75-27-4	N.D.		0.5	3	0.37
10237	Bromoform	75-25-2	N.D.		0.5	3	0.37
10237	Bromomethane	74-83-9	N.D.		1	3	0.37
10237	2-Butanone	78-93-3	N.D.		2	5	0.37
10237	Carbon Disulfide	75-15-0	N.D.		0.5	3	0.37
10237	Carbon Tetrachloride	56-23-5	N.D.		0.5	3	0.37
10237	Chlorobenzene	108-90-7	N.D.		0.5	3	0.37
10237	Chloroethane	75-00-3	N.D.		1	3	0.37
10237	Chloroform	67-66-3	N.D.		0.5	3	0.37
10237	Chloromethane	74-87-3	N.D.		1	3	0.37
10237	Cyclohexane	110-82-7	N.D.		0.5	3	0.37
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		1	3	0.37
10237	Dibromochloromethane	124-48-1	N.D.		0.5	3	0.37
10237	1,2-Dibromoethane	106-93-4	N.D.		0.5	3	0.37
10237	1,2-Dichlorobenzene	95-50-1	N.D.		0.5	3	0.37
10237	1,3-Dichlorobenzene	541-73-1	N.D.		0.5	3	0.37
10237	1,4-Dichlorobenzene	106-46-7	N.D.		0.5	3	0.37
10237	Dichlorodifluoromethane	75-71-8	N.D.		1	3	0.37
10237	1,1-Dichloroethane	75-34-3	N.D.		0.5	3	0.37
10237	1,2-Dichloroethane	107-06-2	N.D.		0.5	3	0.37
10237	1,1-Dichloroethene	75-35-4	N.D.		0.5	3	0.37
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		0.5	3	0.37
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		0.5	3	0.37
10237	1,2-Dichloropropane	78-87-5	N.D.		0.5	3	0.37
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.5	3	0.37
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.5	3	0.37
10237	Ethylbenzene	100-41-4	N.D.		0.5	3	0.37
10237	Freon 113	76-13-1	N.D.		1	5	0.37
10237	2-Hexanone	591-78-6	N.D.		2	5	0.37
10237	Isopropylbenzene	98-82-8	N.D.		0.5	3	0.37
10237	Methyl Acetate	79-20-9	N.D.		1	3	0.37
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.3	3	0.37
10237	4-Methyl-2-pentanone	108-10-1	N.D.		2	5	0.37
10237	Methylcyclohexane	108-87-2	N.D.		0.5	3	0.37
10237	Methylene Chloride	75-09-2	N.D.		1	3	0.37
10237	Styrene	100-42-5	N.D.		0.5	3	0.37
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		0.5	3	0.37
10237	Tetrachloroethene	127-18-4	N.D.		0.5	3	0.37
10237	Toluene	108-88-3	N.D.		0.5	3	0.37
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		0.5	3	0.37
10237	1,1,1-Trichloroethane	71-55-6	N.D.		0.5	3	0.37
10237	1,1,2-Trichloroethane	79-00-5	N.D.		0.5	3	0.37
10237	Trichloroethene	79-01-6	N.D.		0.5	3	0.37
10237	Trichlorofluoromethane	75-69-4	N.D.		1	3	0.37
10237	Vinyl Chloride	75-01-4	N.D.		0.5	3	0.37
10237	Xylene (Total)	1330-20-7	N.D.		0.5	3	0.37
Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.		5.0	23	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093385
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:45 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY235 SDG#: PYM01-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1221	11104-28-2	N.D.	6.3	23	1
10736	PCB-1232	11141-16-5	N.D.	11	23	1
10736	PCB-1242	53469-21-9	N.D.	4.5	23	1
10736	PCB-1248	12672-29-6	N.D.	4.5	23	1
10736	PCB-1254	11097-69-1	N.D.	4.5	23	1
10736	PCB-1260	11096-82-5	N.D.	6.8	23	1
GC Miscellaneous	**SW-846 8015B**		**mg/kg**	**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.	5.5	16	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	220	0.802	2.77	1
06946	Barium	7440-39-3	1,180	0.463	3.46	5
06949	Cadmium	7440-43-9	0.723	0.0595	0.692	1
06951	Chromium	7440-47-3	30.1	0.136	2.07	1
06955	Lead	7439-92-1	31.4	0.443	2.07	1
06936	Selenium	7782-49-2	13.9	1.15	2.77	1
06966	Silver	7440-22-4	N.D.	0.166	0.692	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0830 J	0.0129	0.129	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	27.7	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152942AA	10/21/2015 22:28	Kathrine K Muramatsu	0.37
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 11:45	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 11:45	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 11:45	Client Supplied	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	152950013A	10/27/2015 06:32	Jessica L Miller	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-3-5 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093385
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 11:45 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY235 SDG#: PYM01-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10497	PCB Microwave Soil Extraction	SW-846 3546	1	152950013A	10/23/2015 08:30	Jessica M Velez	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 14:57	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:20	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/23/2015 03:51	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:20	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:20	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:20	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:20	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 02:20	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:23	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-6-8 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093386
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 12:00 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY268 SDG#: PYM01-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Acetone	67-64-1	160		13	36	1.15
10237	Benzene	71-43-2	N.D.		0.9	9	1.15
10237	Bromodichloromethane	75-27-4	N.D.		2	9	1.15
10237	Bromoform	75-25-2	N.D.		2	9	1.15
10237	Bromomethane	74-83-9	N.D.		4	9	1.15
10237	2-Butanone	78-93-3	20		7	18	1.15
10237	Carbon Disulfide	75-15-0	4	J	2	9	1.15
10237	Carbon Tetrachloride	56-23-5	N.D.		2	9	1.15
10237	Chlorobenzene	108-90-7	N.D.		2	9	1.15
10237	Chloroethane	75-00-3	N.D.		4	9	1.15
10237	Chloroform	67-66-3	N.D.		2	9	1.15
10237	Chloromethane	74-87-3	N.D.		4	9	1.15
10237	Cyclohexane	110-82-7	N.D.		2	9	1.15
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		4	9	1.15
10237	Dibromochloromethane	124-48-1	N.D.		2	9	1.15
10237	1,2-Dibromoethane	106-93-4	N.D.		2	9	1.15
10237	1,2-Dichlorobenzene	95-50-1	N.D.		2	9	1.15
10237	1,3-Dichlorobenzene	541-73-1	N.D.		2	9	1.15
10237	1,4-Dichlorobenzene	106-46-7	N.D.		2	9	1.15
10237	Dichlorodifluoromethane	75-71-8	N.D.		4	9	1.15
10237	1,1-Dichloroethane	75-34-3	N.D.		2	9	1.15
10237	1,2-Dichloroethane	107-06-2	N.D.		2	9	1.15
10237	1,1-Dichloroethene	75-35-4	N.D.		2	9	1.15
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		2	9	1.15
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		2	9	1.15
10237	1,2-Dichloropropane	78-87-5	N.D.		2	9	1.15
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		2	9	1.15
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		2	9	1.15
10237	Ethylbenzene	100-41-4	N.D.		2	9	1.15
10237	Freon 113	76-13-1	N.D.		4	18	1.15
10237	2-Hexanone	591-78-6	N.D.		5	18	1.15
10237	Isopropylbenzene	98-82-8	N.D.		2	9	1.15
10237	Methyl Acetate	79-20-9	N.D.		4	9	1.15
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.9	9	1.15
10237	4-Methyl-2-pentanone	108-10-1	N.D.		5	18	1.15
10237	Methylcyclohexane	108-87-2	N.D.		2	9	1.15
10237	Methylene Chloride	75-09-2	N.D.		4	9	1.15
10237	Styrene	100-42-5	N.D.		2	9	1.15
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		2	9	1.15
10237	Tetrachloroethene	127-18-4	N.D.		2	9	1.15
10237	Toluene	108-88-3	N.D.		2	9	1.15
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		2	9	1.15
10237	1,1,1-Trichloroethane	71-55-6	N.D.		2	9	1.15
10237	1,1,2-Trichloroethane	79-00-5	N.D.		2	9	1.15
10237	Trichloroethene	79-01-6	N.D.		2	9	1.15
10237	Trichlorofluoromethane	75-69-4	N.D.		4	9	1.15
10237	Vinyl Chloride	75-01-4	N.D.		2	9	1.15
10237	Xylene (Total)	1330-20-7	N.D.		2	9	1.15

The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: The sample was re-analyzed and the QC is again outside of the

*=This limit was used in the evaluation of the final result

Sample Description: B-2-6-8 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093386
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 12:00 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY268 SDG#: PYM01-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
	acceptance limits, indicating a matrix effect. The data is reported from the initial trial.						
Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.		28	130	5
10736	PCB-1221	11104-28-2	N.D.		35	130	5
10736	PCB-1232	11141-16-5	N.D.		61	130	5
10736	PCB-1242	53469-21-9	N.D.		25	130	5
10736	PCB-1248	12672-29-6	N.D.		25	130	5
10736	PCB-1254	11097-69-1	N.D.		25	130	5
10736	PCB-1260	11096-82-5	N.D.		38	130	5
	Reporting limits were raised due to interference from the sample matrix.						
GC Miscellaneous	**SW-846 8015B**		**mg/kg**		**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	6,100		150	460	25
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	51.2		0.876	3.02	1
06946	Barium	7440-39-3	169		0.101	0.755	1
06949	Cadmium	7440-43-9	0.572	J	0.0649	0.755	1
06951	Chromium	7440-47-3	20.6		0.148	2.26	1
06955	Lead	7439-92-1	480		0.483	2.26	1
06936	Selenium	7782-49-2	11.0		1.25	3.02	1
06966	Silver	7440-22-4	N.D.		0.181	0.755	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.264		0.0152	0.152	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	35.7		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 18:35	Angela D Sneeringer	1.15
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 12:00	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 12:00	Client Supplied	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-6-8 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093386
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 12:00 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY268 SDG#: PYM01-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 12:00	Client Supplied	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	152950013A	10/27/2015 21:15	Jessica L Miller	5
10497	PCB Microwave Soil Extraction	SW-846 3546	1	152950013A	10/23/2015 08:30	Jessica M Velez	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/27/2015 16:34	Thomas C Wildermuth	25
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:23	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/22/2015 02:23	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:23	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:23	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:23	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:23	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 02:23	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:25	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-6-8 Grab Soil
Potomac Yard Metro Station, VA TCLP NVE

LL Sample # TL 8093387
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/15/2015 12:00 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PL268 SDG#: PYM01-09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals		**SW-846 6010B**	**mg/l**	**mg/l**	**mg/l**	
07035	Arsenic	7440-38-2	0.0842	0.0070	0.0200	1
07046	Barium	7440-39-3	3.60	0.00030	0.0050	1
07049	Cadmium	7440-43-9	0.0013 J	0.00030	0.0050	1
07051	Chromium	7440-47-3	0.0091 J	0.0015	0.0150	1
07055	Lead	7439-92-1	N.D.	0.0051	0.0150	1
07036	Selenium	7782-49-2	0.0208	0.0082	0.0200	1
07066	Silver	7440-22-4	N.D.	0.0014	0.0050	1
		SW-846 7470A	**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1

General Sample Comments

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	153145705001	11/11/2015 10:18	Eric L Eby	1
07046	Barium	SW-846 6010B	1	153145705001	11/11/2015 10:18	Eric L Eby	1
07049	Cadmium	SW-846 6010B	1	153145705001	11/11/2015 10:18	Eric L Eby	1
07051	Chromium	SW-846 6010B	1	153145705001	11/11/2015 10:18	Eric L Eby	1
07055	Lead	SW-846 6010B	1	153145705001	11/11/2015 10:18	Eric L Eby	1
07036	Selenium	SW-846 6010B	1	153145705001	11/11/2015 10:18	Eric L Eby	1
07066	Silver	SW-846 6010B	1	153145705001	11/11/2015 10:18	Eric L Eby	1
00259	Mercury	SW-846 7470A	1	153145713002	11/11/2015 09:49	Damary Valentin	1
05705	ICP-WW/TL, 3010A (tot) - U3	SW-846 3010A	1	153145705001	11/10/2015 23:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153145713002	11/11/2015 01:00	Annamaria Kuhns	1
00947	TCLP Non-volatile Extraction	SW-846 1311	1	15313-2486-094 7A	11/09/2015 12:45	Christina A Huber	n.a.

*=This limit was used in the evaluation of the final result

Sample Description: B-2-10-12 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093388
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/13/2015 12:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY210 SDG#: PYM01-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	7	J	6	18	0.72
10237	Benzene	71-43-2	N.D.		0.4	4	0.72
10237	Bromodichloromethane	75-27-4	N.D.		0.9	4	0.72
10237	Bromoform	75-25-2	N.D.		0.9	4	0.72
10237	Bromomethane	74-83-9	N.D.		2	4	0.72
10237	2-Butanone	78-93-3	N.D.		4	9	0.72
10237	Carbon Disulfide	75-15-0	N.D.		0.9	4	0.72
10237	Carbon Tetrachloride	56-23-5	N.D.		0.9	4	0.72
10237	Chlorobenzene	108-90-7	N.D.		0.9	4	0.72
10237	Chloroethane	75-00-3	N.D.		2	4	0.72
10237	Chloroform	67-66-3	N.D.		0.9	4	0.72
10237	Chloromethane	74-87-3	N.D.		2	4	0.72
10237	Cyclohexane	110-82-7	N.D.		0.9	4	0.72
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		2	4	0.72
10237	Dibromochloromethane	124-48-1	N.D.		0.9	4	0.72
10237	1,2-Dibromoethane	106-93-4	N.D.		0.9	4	0.72
10237	1,2-Dichlorobenzene	95-50-1	N.D.		0.9	4	0.72
10237	1,3-Dichlorobenzene	541-73-1	N.D.		0.9	4	0.72
10237	1,4-Dichlorobenzene	106-46-7	N.D.		0.9	4	0.72
10237	Dichlorodifluoromethane	75-71-8	N.D.		2	4	0.72
10237	1,1-Dichloroethane	75-34-3	N.D.		0.9	4	0.72
10237	1,2-Dichloroethane	107-06-2	N.D.		0.9	4	0.72
10237	1,1-Dichloroethene	75-35-4	N.D.		0.9	4	0.72
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		0.9	4	0.72
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		0.9	4	0.72
10237	1,2-Dichloropropane	78-87-5	N.D.		0.9	4	0.72
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.9	4	0.72
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.9	4	0.72
10237	Ethylbenzene	100-41-4	N.D.		0.9	4	0.72
10237	Freon 113	76-13-1	N.D.		2	9	0.72
10237	2-Hexanone	591-78-6	N.D.		3	9	0.72
10237	Isopropylbenzene	98-82-8	N.D.		0.9	4	0.72
10237	Methyl Acetate	79-20-9	N.D.		2	4	0.72
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.4	4	0.72
10237	4-Methyl-2-pentanone	108-10-1	N.D.		3	9	0.72
10237	Methylcyclohexane	108-87-2	N.D.		0.9	4	0.72
10237	Methylene Chloride	75-09-2	N.D.		2	4	0.72
10237	Styrene	100-42-5	N.D.		0.9	4	0.72
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		0.9	4	0.72
10237	Tetrachloroethene	127-18-4	N.D.		0.9	4	0.72
10237	Toluene	108-88-3	N.D.		0.9	4	0.72
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		0.9	4	0.72
10237	1,1,1-Trichloroethane	71-55-6	N.D.		0.9	4	0.72
10237	1,1,2-Trichloroethane	79-00-5	N.D.		0.9	4	0.72
10237	Trichloroethene	79-01-6	N.D.		0.9	4	0.72
10237	Trichlorofluoromethane	75-69-4	N.D.		2	4	0.72
10237	Vinyl Chloride	75-01-4	N.D.		0.9	4	0.72
10237	Xylene (Total)	1330-20-7	N.D.		0.9	4	0.72
Pesticides/PCBs	**SW-846 8082**		**ug/kg**		**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.		4.4	21	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-10-12 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093388
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/13/2015 12:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY210 SDG#: PYM01-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1221	11104-28-2	N.D.	5.6	21	1
10736	PCB-1232	11141-16-5	N.D.	9.8	21	1
10736	PCB-1242	53469-21-9	N.D.	4.0	21	1
10736	PCB-1248	12672-29-6	N.D.	4.0	21	1
10736	PCB-1254	11097-69-1	N.D.	4.0	21	1
10736	PCB-1260	11096-82-5	N.D.	6.0	21	1
GC Miscellaneous	**SW-846 8015B**		**mg/kg**	**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.	4.9	15	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	5.26	0.700	2.41	1
06946	Barium	7440-39-3	67.3	0.0809	0.604	1
06949	Cadmium	7440-43-9	0.893 J	0.260	3.02	5
	Reporting limits were raised due to interference from the sample matrix.					
06951	Chromium	7440-47-3	25.3	0.118	1.81	1
06955	Lead	7439-92-1	17.5	0.386	1.81	1
06936	Selenium	7782-49-2	9.71	1.00	2.41	1
06966	Silver	7440-22-4	5.13	0.145	0.604	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0123 J	0.0121	0.121	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	18.8	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 17:26	Angela D Sneeringer	0.72
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/15/2015 12:15	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/15/2015 12:15	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/15/2015 12:15	Client Supplied	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	152950013A	10/27/2015 07:17	Jessica L Miller	1

*=This limit was used in the evaluation of the final result

Sample Description: B-2-10-12 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093388
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/13/2015 12:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY210 SDG#: PYM01-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10497	PCB Microwave Soil Extraction	SW-846 3546	1	152950013A	10/23/2015 08:30	Jessica M Velez	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 15:19	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:26	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/22/2015 02:26	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	152925708002	10/23/2015 03:54	Tara L Snyder	5
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:26	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:26	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:26	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 02:26	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:27	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-1-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093389
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/16/2015 10:30 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY124 SDG#: PYM01-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	52	9	27	1.04
10237	Benzene	71-43-2	N.D.	0.7	7	1.04
10237	Bromodichloromethane	75-27-4	N.D.	1	7	1.04
10237	Bromoform	75-25-2	N.D.	1	7	1.04
10237	Bromomethane	74-83-9	N.D.	3	7	1.04
10237	2-Butanone	78-93-3	N.D.	5	13	1.04
10237	Carbon Disulfide	75-15-0	N.D.	1	7	1.04
10237	Carbon Tetrachloride	56-23-5	N.D.	1	7	1.04
10237	Chlorobenzene	108-90-7	N.D.	1	7	1.04
10237	Chloroethane	75-00-3	N.D.	3	7	1.04
10237	Chloroform	67-66-3	N.D.	1	7	1.04
10237	Chloromethane	74-87-3	N.D.	3	7	1.04
10237	Cyclohexane	110-82-7	N.D.	1	7	1.04
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	3	7	1.04
10237	Dibromochloromethane	124-48-1	N.D.	1	7	1.04
10237	1,2-Dibromoethane	106-93-4	N.D.	1	7	1.04
10237	1,2-Dichlorobenzene	95-50-1	N.D.	1	7	1.04
10237	1,3-Dichlorobenzene	541-73-1	N.D.	1	7	1.04
10237	1,4-Dichlorobenzene	106-46-7	N.D.	1	7	1.04
10237	Dichlorodifluoromethane	75-71-8	N.D.	3	7	1.04
10237	1,1-Dichloroethane	75-34-3	N.D.	1	7	1.04
10237	1,2-Dichloroethane	107-06-2	N.D.	1	7	1.04
10237	1,1-Dichloroethene	75-35-4	N.D.	1	7	1.04
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	1	7	1.04
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	1	7	1.04
10237	1,2-Dichloropropane	78-87-5	N.D.	1	7	1.04
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	1	7	1.04
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	1	7	1.04
10237	Ethylbenzene	100-41-4	N.D.	1	7	1.04
10237	Freon 113	76-13-1	N.D.	3	13	1.04
10237	2-Hexanone	591-78-6	N.D.	4	13	1.04
10237	Isopropylbenzene	98-82-8	N.D.	1	7	1.04
10237	Methyl Acetate	79-20-9	N.D.	3	7	1.04
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.7	7	1.04
10237	4-Methyl-2-pentanone	108-10-1	N.D.	4	13	1.04
10237	Methylcyclohexane	108-87-2	N.D.	1	7	1.04
10237	Methylene Chloride	75-09-2	N.D.	3	7	1.04
10237	Styrene	100-42-5	N.D.	1	7	1.04
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	7	1.04
10237	Tetrachloroethene	127-18-4	N.D.	1	7	1.04
10237	Toluene	108-88-3	N.D.	1	7	1.04
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	7	1.04
10237	1,1,1-Trichloroethane	71-55-6	N.D.	1	7	1.04
10237	1,1,2-Trichloroethane	79-00-5	N.D.	1	7	1.04
10237	Trichloroethene	79-01-6	N.D.	1	7	1.04
10237	Trichlorofluoromethane	75-69-4	N.D.	3	7	1.04
10237	Vinyl Chloride	75-01-4	N.D.	1	7	1.04
10237	Xylene (Total)	1330-20-7	N.D.	1	7	1.04
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1016	12674-11-2	N.D.	4.6	22	1

*=This limit was used in the evaluation of the final result

Sample Description: B-1-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093389
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/16/2015 10:30 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY124 SDG#: PYM01-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	**ug/kg**	
10736	PCB-1221	11104-28-2	N.D.	5.8	22	1
10736	PCB-1232	11141-16-5	N.D.	10	22	1
10736	PCB-1242	53469-21-9	N.D.	4.2	22	1
10736	PCB-1248	12672-29-6	N.D.	4.2	22	1
10736	PCB-1254	11097-69-1	N.D.	4.2	22	1
10736	PCB-1260	11096-82-5	25	6.2	22	1
GC Miscellaneous	**SW-846 8015B**		**mg/kg**	**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.	5.1	15	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	116	0.716	2.47	1
06946	Barium	7440-39-3	681	0.413	3.09	5
06949	Cadmium	7440-43-9	0.588 J	0.0531	0.617	1
06951	Chromium	7440-47-3	22.6	0.121	1.85	1
06955	Lead	7439-92-1	25.2	0.395	1.85	1
06936	Selenium	7782-49-2	7.24	1.02	2.47	1
06966	Silver	7440-22-4	N.D.	0.148	0.617	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0696 J	0.0126	0.126	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	22.1	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 17:49	Angela D Sneeringer	1.04
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/16/2015 10:30	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/16/2015 10:30	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/16/2015 10:30	Client Supplied	1
10736	PCBs in Soil (microwave)	SW-846 8082	1	152950013A	10/27/2015 07:28	Jessica L Miller	1

*=This limit was used in the evaluation of the final result

Sample Description: B-1-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093389
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/16/2015 10:30 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY124 SDG#: PYM01-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10497	PCB Microwave Soil Extraction	SW-846 3546	1	152950013A	10/23/2015 08:30	Jessica M Velez	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 17:11	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:30	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/23/2015 04:03	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:30	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:30	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:30	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:30	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 02:30	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:29	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: B-8-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093390
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/16/2015 11:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY824 SDG#: PYM01-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	20	J	7	21	0.84
10237	Benzene	71-43-2	N.D.		0.5	5	0.84
10237	Bromodichloromethane	75-27-4	N.D.		1	5	0.84
10237	Bromoform	75-25-2	N.D.		1	5	0.84
10237	Bromomethane	74-83-9	N.D.		2	5	0.84
10237	2-Butanone	78-93-3	N.D.		4	11	0.84
10237	Carbon Disulfide	75-15-0	N.D.		1	5	0.84
10237	Carbon Tetrachloride	56-23-5	N.D.		1	5	0.84
10237	Chlorobenzene	108-90-7	N.D.		1	5	0.84
10237	Chloroethane	75-00-3	N.D.		2	5	0.84
10237	Chloroform	67-66-3	N.D.		1	5	0.84
10237	Chloromethane	74-87-3	N.D.		2	5	0.84
10237	Cyclohexane	110-82-7	N.D.		1	5	0.84
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		2	5	0.84
10237	Dibromochloromethane	124-48-1	N.D.		1	5	0.84
10237	1,2-Dibromoethane	106-93-4	N.D.		1	5	0.84
10237	1,2-Dichlorobenzene	95-50-1	N.D.		1	5	0.84
10237	1,3-Dichlorobenzene	541-73-1	N.D.		1	5	0.84
10237	1,4-Dichlorobenzene	106-46-7	N.D.		1	5	0.84
10237	Dichlorodifluoromethane	75-71-8	N.D.		2	5	0.84
10237	1,1-Dichloroethane	75-34-3	N.D.		1	5	0.84
10237	1,2-Dichloroethane	107-06-2	N.D.		1	5	0.84
10237	1,1-Dichloroethene	75-35-4	N.D.		1	5	0.84
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		1	5	0.84
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		1	5	0.84
10237	1,2-Dichloropropane	78-87-5	N.D.		1	5	0.84
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		1	5	0.84
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		1	5	0.84
10237	Ethylbenzene	100-41-4	N.D.		1	5	0.84
10237	Freon 113	76-13-1	N.D.		2	11	0.84
10237	2-Hexanone	591-78-6	N.D.		3	11	0.84
10237	Isopropylbenzene	98-82-8	N.D.		1	5	0.84
10237	Methyl Acetate	79-20-9	N.D.		2	5	0.84
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.5	5	0.84
10237	4-Methyl-2-pentanone	108-10-1	N.D.		3	11	0.84
10237	Methylcyclohexane	108-87-2	N.D.		1	5	0.84
10237	Methylene Chloride	75-09-2	N.D.		2	5	0.84
10237	Styrene	100-42-5	N.D.		1	5	0.84
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1	5	0.84
10237	Tetrachloroethene	127-18-4	N.D.		1	5	0.84
10237	Toluene	108-88-3	N.D.		1	5	0.84
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		1	5	0.84
10237	1,1,1-Trichloroethane	71-55-6	N.D.		1	5	0.84
10237	1,1,2-Trichloroethane	79-00-5	N.D.		1	5	0.84
10237	Trichloroethene	79-01-6	N.D.		1	5	0.84
10237	Trichlorofluoromethane	75-69-4	N.D.		2	5	0.84
10237	Vinyl Chloride	75-01-4	N.D.		1	5	0.84
10237	Xylene (Total)	1330-20-7	N.D.		1	5	0.84
GC Miscellaneous	**SW-846 8015B**		**mg/kg**		**mg/kg**	**mg/kg**	
10941	TPH-DRO soil C10-C28 microwave	n.a.	N.D.		5.0	15	1

*=This limit was used in the evaluation of the final result

Sample Description: B-8-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093390
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/16/2015 11:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY824 SDG#: PYM01-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	22.4	0.725	2.50	1
06946	Barium	7440-39-3	103	0.0838	0.625	1
06949	Cadmium	7440-43-9	0.526 J	0.0538	0.625	1
06951	Chromium	7440-47-3	30.6	0.123	1.88	1
06955	Lead	7439-92-1	53.5	0.400	1.88	1
06936	Selenium	7782-49-2	3.49	1.04	2.50	1
06966	Silver	7440-22-4	N.D.	0.150	0.625	1
	SW-846 7471A		**mg/kg**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0460 J	0.0122	0.122	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	20.8	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL VOCs 4.3 8260B	SW-846 8260B	1	X152931AA	10/20/2015 18:12	Angela D Sneeringer	0.84
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201529039141	10/16/2015 11:15	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201529039141	10/16/2015 11:15	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201529039141	10/16/2015 11:15	Client Supplied	1
10941	TPH-DRO soil C10-C28 microwave	SW-846 8015B	1	152960028A	10/26/2015 17:56	Thomas C Wildermuth	1
10942	Microwave Extraction-DRO soils	SW-846 3546	1	152960028A	10/24/2015 08:35	Olivia Arosemena	1
06935	Arsenic	SW-846 6010B	1	152925708002	10/22/2015 02:33	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708002	10/22/2015 02:33	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	152925708002	10/22/2015 02:33	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708002	10/22/2015 02:33	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	152925708002	10/22/2015 02:33	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	152925708002	10/22/2015 02:33	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708002	10/22/2015 02:33	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	152945711004	10/23/2015 07:31	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708002	10/20/2015 09:26	Christopher M Klumpp	1

*=This limit was used in the evaluation of the final result

Sample Description: B-8-2-4 Grab Soil
Potomac Yard Metro Station, VA

LL Sample # SW 8093390
LL Group # 1601713
Account # 10303

Project Name: Potomac Yard Metro Station

Collected: 10/16/2015 11:15 by BM

Submitted: 10/16/2015 17:40
Reported: 11/16/2015 11:45

AECOM Environment
3101 Wilson Boulevard
Suite 900
Arlington VA

PY824 SDG#: PYM01-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152945711004	10/22/2015 13:50	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15293820004B	10/20/2015 20:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: AECOM Environment Group Number: 1601713
Reported: 11/16/2015 11:45

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: X152931AA	Sample number(s): 8093379,8093381-8093384,8093386,8093388-8093390									
Acetone	N.D.		7.	20	ug/kg	92	88	46-139	4	30
Benzene	N.D.		0.5	5	ug/kg	96	95	80-120	2	30
Bromodichloromethane	N.D.		1.	5	ug/kg	88	86	75-120	2	30
Bromoform	N.D.		1.	5	ug/kg	79	75	64-120	5	30
Bromomethane	N.D.		2.	5	ug/kg	70	70	21-192	0	30
2-Butanone	N.D.		4.	10	ug/kg	81	77	54-129	5	30
Carbon Disulfide	1	J	1.	5	ug/kg	111	105	60-120	5	30
Carbon Tetrachloride	N.D.		1.	5	ug/kg	85	82	69-130	4	30
Chlorobenzene	N.D.		1.	5	ug/kg	95	93	80-120	2	30
Chloroethane	N.D.		2.	5	ug/kg	78	77	21-185	1	30
Chloroform	N.D.		1.	5	ug/kg	94	92	80-120	2	30
Chloromethane	N.D.		2.	5	ug/kg	77	75	56-120	2	30
Cyclohexane	N.D.		1.	5	ug/kg	90	86	58-120	4	30
1,2-Dibromo-3-chloropropane	N.D.		2.	5	ug/kg	79	79	59-122	0	30
Dibromochloromethane	N.D.		1.	5	ug/kg	87	84	77-120	4	30
1,2-Dibromoethane	N.D.		1.	5	ug/kg	95	93	80-120	2	30
1,2-Dichlorobenzene	N.D.		1.	5	ug/kg	94	93	80-120	1	30
1,3-Dichlorobenzene	N.D.		1.	5	ug/kg	93	92	80-120	1	30
1,4-Dichlorobenzene	N.D.		1.	5	ug/kg	95	92	80-120	3	30
Dichlorodifluoromethane	N.D.		2.	5	ug/kg	73	68	28-131	7	30
1,1-Dichloroethane	N.D.		1.	5	ug/kg	90	89	77-120	1	30
1,2-Dichloroethane	N.D.		1.	5	ug/kg	89	89	77-130	0	30
1,1-Dichloroethene	N.D.		1.	5	ug/kg	97	94	73-129	3	30
cis-1,2-Dichloroethene	N.D.		1.	5	ug/kg	99	97	80-120	2	30
trans-1,2-Dichloroethene	N.D.		1.	5	ug/kg	100	100	79-122	1	30
1,2-Dichloropropane	N.D.		1.	5	ug/kg	94	93	76-120	0	30
cis-1,3-Dichloropropene	N.D.		1.	5	ug/kg	87	84	74-120	3	30
trans-1,3-Dichloropropene	N.D.		1.	5	ug/kg	85	83	76-120	3	30
Ethylbenzene	N.D.		1.	5	ug/kg	94	93	80-120	2	30
Freon 113	N.D.		2.	10	ug/kg	95	92	54-123	3	30
2-Hexanone	N.D.		3.	10	ug/kg	76	73	47-133	5	30
Isopropylbenzene	N.D.		1.	5	ug/kg	96	93	76-120	3	30
Methyl Acetate	N.D.		2.	5	ug/kg	86	83	61-144	3	30
Methyl Tertiary Butyl Ether	N.D.		0.5	5	ug/kg	93	91	72-120	2	30
4-Methyl-2-pentanone	N.D.		3.	10	ug/kg	78	75	57-123	4	30
Methylcyclohexane	N.D.		1.	5	ug/kg	90	88	59-120	2	30
Methylene Chloride	N.D.		2.	5	ug/kg	96	94	76-122	2	30
Styrene	N.D.		1.	5	ug/kg	91	88	76-120	2	30
1,1,2,2-Tetrachloroethane	N.D.		1.	5	ug/kg	93	91	67-121	3	30
Tetrachloroethene	N.D.		1.	5	ug/kg	94	89	78-120	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM Environment Group Number: 1601713
Reported: 11/16/2015 11:45

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Toluene	N.D.	1.	5	ug/kg	98	95	80-120	3	30
1,2,4-Trichlorobenzene	N.D.	1.	5	ug/kg	87	86	60-120	1	30
1,1,1-Trichloroethane	N.D.	1.	5	ug/kg	89	87	59-136	3	30
1,1,2-Trichloroethane	N.D.	1.	5	ug/kg	95	92	80-120	3	30
Trichloroethene	N.D.	1.	5	ug/kg	98	95	80-120	3	30
Trichlorofluoromethane	N.D.	2.	5	ug/kg	78	76	58-133	3	30
Vinyl Chloride	N.D.	1.	5	ug/kg	81	80	59-120	1	30
Xylene (Total)	N.D.	1.	5	ug/kg	95	93	80-120	2	30
Batch number: X152942AA	Sample number(s): 8093385								
Acetone	N.D.	7.	20	ug/kg	90	89	46-139	2	30
Benzene	N.D.	0.5	5	ug/kg	100	101	80-120	0	30
Bromodichloromethane	N.D.	1.	5	ug/kg	91	91	75-120	1	30
Bromoform	N.D.	1.	5	ug/kg	81	82	64-120	1	30
Bromomethane	N.D.	2.	5	ug/kg	72	74	21-192	3	30
2-Butanone	N.D.	4.	10	ug/kg	82	82	54-129	0	30
Carbon Disulfide	N.D.	1.	5	ug/kg	115	115	60-120	0	30
Carbon Tetrachloride	N.D.	1.	5	ug/kg	95	95	69-130	1	30
Chlorobenzene	N.D.	1.	5	ug/kg	98	99	80-120	0	30
Chloroethane	N.D.	2.	5	ug/kg	84	86	21-185	2	30
Chloroform	N.D.	1.	5	ug/kg	99	100	80-120	1	30
Chloromethane	N.D.	2.	5	ug/kg	75	78	56-120	3	30
Cyclohexane	N.D.	1.	5	ug/kg	93	93	58-120	1	30
1,2-Dibromo-3-chloropropane	N.D.	2.	5	ug/kg	80	81	59-122	2	30
Dibromochloromethane	N.D.	1.	5	ug/kg	89	89	77-120	0	30
1,2-Dibromoethane	N.D.	1.	5	ug/kg	97	98	80-120	0	30
1,2-Dichlorobenzene	N.D.	1.	5	ug/kg	98	99	80-120	1	30
1,3-Dichlorobenzene	N.D.	1.	5	ug/kg	98	100	80-120	1	30
1,4-Dichlorobenzene	N.D.	1.	5	ug/kg	100	100	80-120	0	30
Dichlorodifluoromethane	N.D.	2.	5	ug/kg	73	73	28-131	1	30
1,1-Dichloroethane	N.D.	1.	5	ug/kg	95	95	77-120	0	30
1,2-Dichloroethane	N.D.	1.	5	ug/kg	93	95	77-130	1	30
1,1-Dichloroethene	N.D.	1.	5	ug/kg	106	106	73-129	0	30
cis-1,2-Dichloroethene	N.D.	1.	5	ug/kg	102	102	80-120	0	30
trans-1,2-Dichloroethene	N.D.	1.	5	ug/kg	107	106	79-122	1	30
1,2-Dichloropropane	N.D.	1.	5	ug/kg	95	96	76-120	1	30
cis-1,3-Dichloropropene	N.D.	1.	5	ug/kg	87	89	74-120	1	30
trans-1,3-Dichloropropene	N.D.	1.	5	ug/kg	86	87	76-120	1	30
Ethylbenzene	N.D.	1.	5	ug/kg	98	98	80-120	0	30
Freon 113	N.D.	2.	10	ug/kg	104	105	54-123	0	30
2-Hexanone	N.D.	3.	10	ug/kg	77	76	47-133	1	30
Isopropylbenzene	N.D.	1.	5	ug/kg	99	99	76-120	0	30
Methyl Acetate	N.D.	2.	5	ug/kg	89	87	61-144	2	30
Methyl Tertiary Butyl Ether	N.D.	0.5	5	ug/kg	95	95	72-120	0	30
4-Methyl-2-pentanone	N.D.	3.	10	ug/kg	78	78	57-123	0	30
Methylcyclohexane	N.D.	1.	5	ug/kg	95	95	59-120	0	30
Methylene Chloride	N.D.	2.	5	ug/kg	101	100	76-122	1	30
Styrene	N.D.	1.	5	ug/kg	91	92	76-120	1	30
1,1,2,2-Tetrachloroethane	N.D.	1.	5	ug/kg	94	94	67-121	0	30
Tetrachloroethene	N.D.	1.	5	ug/kg	100	99	78-120	0	30
Toluene	N.D.	1.	5	ug/kg	101	101	80-120	0	30
1,2,4-Trichlorobenzene	N.D.	1.	5	ug/kg	89	89	60-120	0	30
1,1,1-Trichloroethane	N.D.	1.	5	ug/kg	94	93	59-136	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM Environment Group Number: 1601713
Reported: 11/16/2015 11:45

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	N.D.	1.	5	ug/kg	96	96	80-120	1	30
Trichloroethene	N.D.	1.	5	ug/kg	102	102	80-120	0	30
Trichlorofluoromethane	N.D.	2.	5	ug/kg	85	86	58-133	1	30
Vinyl Chloride	N.D.	1.	5	ug/kg	80	84	59-120	4	30
Xylene (Total)	N.D.	1.	5	ug/kg	98	98	80-120	0	30
Batch number: 152950013A	Sample number(s): 8093379,8093383,8093385-8093386,8093388-8093389								
PCB-1016	N.D.	3.6	17	ug/kg	102		76-121		
PCB-1221	N.D.	4.6	17	ug/kg					
PCB-1232	N.D.	8.0	17	ug/kg					
PCB-1242	N.D.	3.3	17	ug/kg					
PCB-1248	N.D.	3.3	17	ug/kg					
PCB-1254	N.D.	3.3	17	ug/kg					
PCB-1260	N.D.	4.9	17	ug/kg	108		79-130		
Batch number: 152960028A	Sample number(s): 8093379,8093381-8093386,8093388-8093390								
TPH-DRO soil C10-C28 microwave	N.D.	4.0	12	mg/kg	86		74-117		
Batch number: 152925708002	Sample number(s): 8093379,8093381-8093386,8093388-8093390								
Arsenic	N.D.	0.580	2.00	mg/kg	108		80-120		
Barium	N.D.	0.0670	0.500	mg/kg	109		80-120		
Cadmium	N.D.	0.0430	0.500	mg/kg	108		80-120		
Chromium	N.D.	0.0980	1.50	mg/kg	103		80-120		
Lead	N.D.	0.320	1.50	mg/kg	112		80-120		
Selenium	N.D.	0.830	2.00	mg/kg	108		80-120		
Silver	N.D.	0.120	0.500	mg/kg	105		80-120		
Batch number: 152945711004	Sample number(s): 8093379,8093381-8093386,8093388-8093390								
Mercury	N.D.	0.0100	0.100	mg/kg	96		80-120		
Batch number: 153145705001	Sample number(s): 8093380,8093387								
Arsenic	0.0073 J	0.0070	0.0200	mg/l	117		80-120		
Barium	0.00091 J	0.00030	0.0050	mg/l	98		80-120		
Cadmium	N.D.	0.00030	0.0050	mg/l	104		80-120		
Chromium	N.D.	0.0015	0.0150	mg/l	107		80-120		
Lead	N.D.	0.0051	0.0150	mg/l	99		80-120		
Selenium	N.D.	0.0082	0.0200	mg/l	120		80-120		
Silver	N.D.	0.0014	0.0050	mg/l	104		80-120		
Batch number: 153145713002	Sample number(s): 8093380,8093387								
Mercury	N.D.	0.00005 0	0.00020	mg/l	96		80-120		
Batch number: 15293820004B	Sample number(s): 8093379,8093381-8093386,8093388-8093390								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM Environment Group Number: 1601713
Reported: 11/16/2015 11:45

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 152950013A	Sample number(s): 8093379,8093383,8093385-8093386,8093388-8093389 UNSPK: P086793								
PCB-1016	93	99	76-121	6	50				
PCB-1260	80	83	79-130	4	50				
Batch number: 152960028A	Sample number(s): 8093379,8093381-8093386,8093388-8093390 UNSPK: P089996 BKG: P089996								
TPH-DRO soil C10-C28 microwave	88		74-117			94	76	22*	20
Batch number: 152925708002	Sample number(s): 8093379,8093381-8093386,8093388-8093390 UNSPK: P083789 BKG: P083789								
Arsenic	106	105	75-125	0	20	2.08	1.79 J	15 (1)	20
Barium	114	108	75-125	4	20	98.4	106	7	20
Cadmium	104	104	75-125	0	20	0.299 J	0.330 J	10 (1)	20
Chromium	119	114	75-125	3	20	6.69	7.89	16 (1)	20
Lead	116	112	75-125	2	20	14.7	14.7	0	20
Selenium	103	103	75-125	1	20	2.20	2.96	29* (1)	20
Silver	96	90	75-125	6	20	N.D.	N.D.	0 (1)	20
Batch number: 152945711004	Sample number(s): 8093379,8093381-8093386,8093388-8093390 UNSPK: 8093379 BKG: 8093379								
Mercury	103	95	80-120	4	20	0.0392 J	0.0451 J	14 (1)	20
Batch number: 153145705001	Sample number(s): 8093380,8093387 UNSPK: P107830 BKG: P107830								
Arsenic	106	105	75-125	1	20	0.0113 J	0.0127 J	11 (1)	20
Barium	92	92	75-125	0	20	0.752	0.754	0	20
Cadmium	93	92	75-125	1	20	0.0101	0.0101	0 (1)	20
Chromium	93	93	75-125	0	20	0.0051 J	0.0052 J	2 (1)	20
Lead	88	88	75-125	0	20	0.0117 J	0.0119 J	1 (1)	20
Selenium	112	111	75-125	1	20	N.D.	N.D.	0 (1)	20
Silver	47*	41*	75-125	14	20	N.D.	N.D.	0 (1)	20
Batch number: 153145713002	Sample number(s): 8093380,8093387 UNSPK: P107830 BKG: P107830								
Mercury	88	88	80-120	1	20	N.D.	N.D.	0 (1)	20
Batch number: 15293820004B	Sample number(s): 8093379,8093381-8093386,8093388-8093390 BKG: 8093388								
Moisture						18.8	17.8	6*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCL VOCs 4.3 8260B
Batch number: X152931AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8093379	100	109	99	96
8093381	108	112	105	89
8093382	100	107	102	95
8093383	101	105	101	96

*- Outside of specification
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Quality Control Summary

Client Name: AECOM Environment Group Number: 1601713
Reported: 11/16/2015 11:45

Surrogate Quality Control

8093384	104	108	106	84
8093386	114	115	124	72
8093388	99	105	98	97
8093389	101	107	99	94
8093390	100	105	100	94
Blank	98	103	99	98
LCS	98	101	100	99
LCSD	98	101	99	99
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL VOCs 4.3 8260B
Batch number: X152942AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8093385	105	107	106	81
Blank	99	100	98	96
LCS	98	100	99	97
LCSD	98	100	98	97
Limits:	50-141	54-135	52-141	50-131

Analysis Name: PCBs in Soil (microwave)
Batch number: 152950013A

	Tetrachloro-m-xylene	Decachlorobiphenyl
8093379	101	87
8093383	102	91
8093385	86	90
8093386	61	64
8093388	110	76
8093389	96	77
Blank	108	100
LCS	109	101
MS	95	74
MSD	104	84
Limits:	53-140	45-143

Analysis Name: TPH-DRO soil C10-C28 microwave
Batch number: 152960028A

	Orthoterphenyl
8093379	87
8093381	68
8093382	67
8093383	61
8093384	80
8093385	66
8093386	29*
8093388	82
8093389	88
8093390	83
Blank	94
DUP	92
LCS	82
MS	84
Limits:	54-145

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: AECOM Environment Group Number: 1601713
Reported: 11/16/2015 11:45

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 11487 Group # 1601713 Sample # 8093379-90

COC # 389610

Client Information

Client: AECOM

Acct. #:

Project Name/#: Potomac Yard Metro Station

PWSID #:

Project Manager: Brendan McGuinness

P.O. #:

Sampler: Brendan McGuinness

Quote #:

State where samples were collected: VA

For Compliance: Yes ☐ No ☑

Matrix

Sediment ☐ Soil ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other:

Total # of Containers

Analysis Requested

Preservation Codes

TCLP (Metals only) | PCBs | RCRA Metals | TPH-DRO | VOCs

For Lab Use Only

FSC:

SCR#: 178602

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

RUSH TAT

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	TCLP (Metals only)	PCBs	RCRA Metals	TPH-DRO	VOCs
B-6-3-5	10-5-15	10:15	X		1	✓	✓	✓	✓	✓
B-7-0-2		10:45						✓	✓	✓
B-7-3-5		11:00						✓	✓	✓
B-5-2-4		1115					✓	✓	✓	✓
B-4-3-5		1130						✓	✓	✓
B-2-3-5		1145					✓	✓	✓	✓
B-2-6-8		1200				✓	✓	✓	✓	✓
B-2-10-12	10-5-15	1215					✓	✓	✓	✓

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 5 DAY TAT

E-mail address: brendan.mcguinness@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Joe Helpert	10-6-15	13:26	Brendan McGuinness	10-13-15	1100
Brendan McGuinness	10-16-15	1300			

EDD Required? (Yes) No

If yes, format: excel

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other ____

Temperature upon receipt 0.7-1.3 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 11487 Group # 1601713 Sample # 8093378-90

COC # 389611

Client Information

Client: AECOM

Acct. #:

Project Name/#: Potomac Yard Metro Station

PWSID #:

Project Manager: Brendan McGuinness

P.O. #:

Sampler: Brendan McGuinness

Quote #:

State where samples were collected: VA

For Compliance: Yes ☐ No ☑

Matrix

Sediment ☐ Soil ☒ Water: Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Other: ☐

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	RCRA Metals	TPH-DRO	VOCs	PCBs
B-1-2-4	10.16.15	1030	X		4	✓	✓	✓	✓
B-8-2-4	10.16.15	1115	X		6	✓	✓	✓	

For Lab Use Only

FSC:

SCR#: 178602

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

RUSH
5 DAY TAT.

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 5 DAY TAT

E-mail address: brendan.mcguinness@aecom.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
TX TRRP-13
NYSDEC Category A or B
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	10.16.15	1300			
			[signature]	10/16/15	1740

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt 0.7-1.3 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 115005

Group Number(s): 1600713

Client: AECOM

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	10/16/2015 17:40
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	VA		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Jordan Woods (6698) at 21:37 on 10/16/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.3	DT	Wet	Y	Bagged	N
2	DT146	0.7	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
B-6 - 3-5	8	7	

2425 New Holland Pike
Lancaster, PA 17605-2425
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F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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APPENDIX C:

PHOTOGRAPHS OF FIELD WORK

Photo 1. Remote control DPT drill rig mobilizing to boring sites from Potomac Greens.

Photo 2. Very moist to saturated fly ash in sample liner at SB-6.

Photo 3. DPT drill rig located at SB-7.

Photo 4. DPT drill rig located at SB-4.

Photo 5. Fly ash in sample liner at 2 feet below ground at SB-4.

Photo 6. DPT drill rig at SB-2 at former oil/water separator pond.

Photo 7. View of DPT drill rig on SB-2 at former oil/water separator.

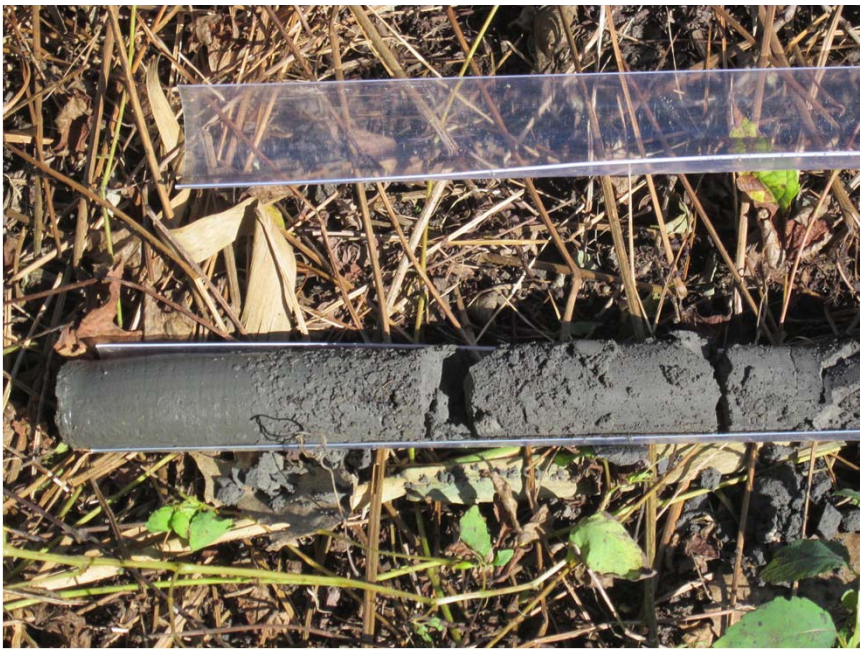

Photo 8. Close-up of fly ash fill at soil boring SB-2.

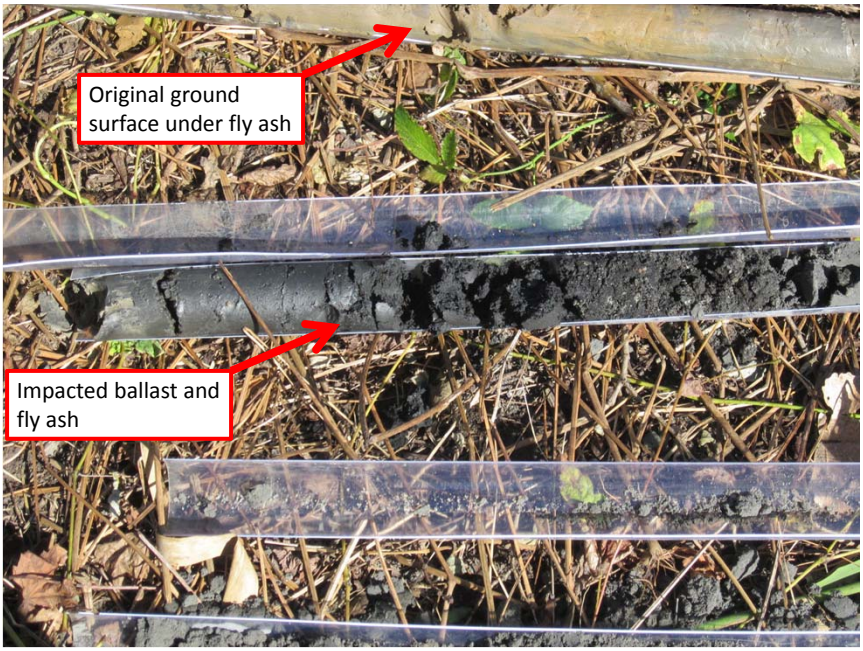

Photo 9. Close-up of petroleum impacted soil and ballast at 7.5 to 8 feet above original ground surface indicated by mottled clay in liner above.

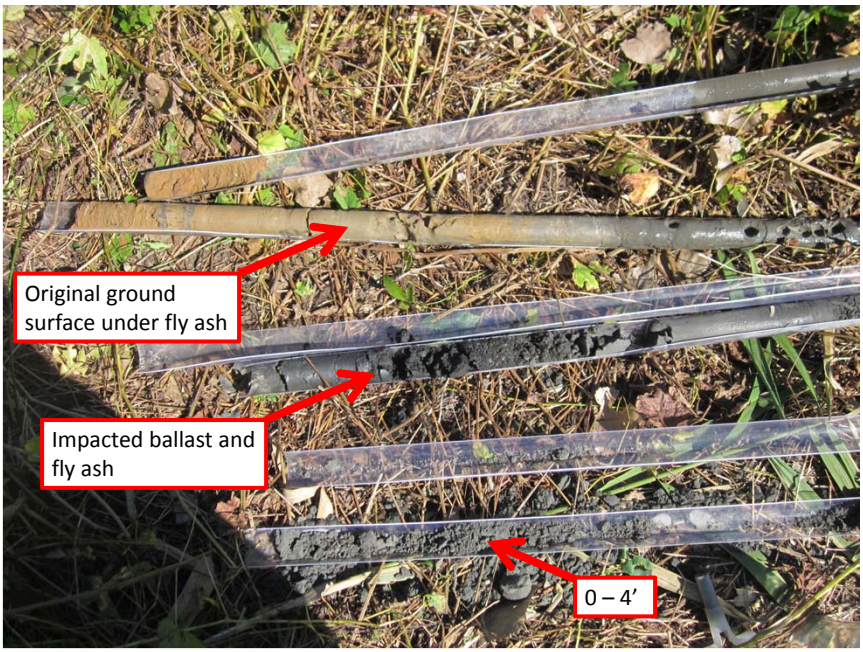

Photo 10. Grey fly ash with some ballast grades into brown mottled clay of original ground surface at 8 to 12 feet below ground at SB-2.



Potomac Yard Metrorail Station

Staff Recommendation for the Preferred Alternative

April 24, 2015

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1.0 SUMMARY

Potomac Yard represents one of the most significant redevelopment opportunities for the City with the potential to achieve the vision for an urban mix of uses near transit. The construction of a Metrorail station has been the basis for transportation and land use planning for Potomac Yard for many years, most recently in the 2010 North Potomac Yard Small Area Plan and the 2008 Transportation Master Plan which included the following recommendation:

The City expects that any amendment to the Potomac Yard/ Potomac Greens Small Area Plan which results in an increase in density beyond what is currently approved will include reasonable provisions to address the development and funding of an additional Metrorail Station.

The selection of the preferred location of the Metrorail station is an important decision for the City from a transportation, land use and economic development perspective. Discussions regarding this large and complex City project have been ongoing for many years and the Draft Environmental Impact Statement (Draft EIS) is the last step in this process before City Council can select a location for the Metrorail station in Potomac Yard.

Building a new Metrorail station is the key to transforming Potomac Yard into a smart-growth, urban, walkable community with a mix of office and residential uses, high-quality retail, entertainment, and new parks. A new Metrorail station will help accommodate growing transportation demand in the Route 1 corridor within the existing roadway network and will provide additional benefits to the City and region by:

- Maximizing the number of people taking transit to and from the Potomac Yard area by providing direct access to Metrorail;
- Removing thousands of cars from the Route 1 corridor every day;
- Enabling a mix of uses in an environment where people can walk or bike to destinations in Potomac Yard for their daily needs;
- Providing a vibrant destination for all Alexandrians with a mix of uses, including significant shopping and public parks; and
- Strengthening and diversifying the tax base to improve the long-term economic stability of the City by enabling additional office development within Potomac Yard.

Getting the Metrorail station location right, closest to the most potential development and office uses in particular, is critical to the success of the project. The North Potomac Yard Small Area Plan recommends that the station be located closest to the highest density. The Plan also allows the most density if the station is constructed in the Alternative B location (and requires the developer to contribute to the cost of construction), and therefore yields the most economic benefit to the City. Alternative B puts the Metrorail station within 0.25 mile of the most development and creates the best opportunity for smart growth and a walkable, compact, urban community. Staff has determined after much analysis that Alternative B best balances land use and transportation, is consistent with City plans, and places the station in the best location to serve the largest number of potential Metrorail riders.

1.1 Background

Planning for a Metrorail station in Potomac Yard has a long history. The potential for a Metrorail station at Potomac Yard was initially considered during the planning of the Metrorail Regional System in the 1960s and 1970s. While a Metrorail station was not required as part of the 1999 City approval for South Potomac Yard, a reservation site for a future Metrorail station (Alternative A) was required so as to not preclude a future Metrorail station. No financing plan was developed in 1999.

Major milestones in the history of planning for the Potomac Yard Metrorail Station include:

- 1968 and 1975: Metrorail system plans identified Potomac Yard as a site for a future Metrorail station that could benefit new development.
- Mid-to-Late 1980s: The draft Alexandria 2020 plan proposed a mixed-use, neighborhood development with a Metrorail station. Operations of the existing rail yard began to be phased out.
- 1992/1999: The City of Alexandria's Potomac Yard/ Potomac Greens Small Area Plan identified the potential for a Metrorail station. A 2009 revision included approval for an urban, mixed-use Town Center along East Glebe Road.
- 2010: The Potomac Yard Concept Development Study, conducted by the City of Alexandria and the Washington Metropolitan Area Transit Authority (WMATA), analyzed eight potential Metrorail station locations, recommending further examination of three locations.
- 2010: The North Potomac Yard Small Area Plan was adopted, envisioning replacement of the existing shopping center with a high-density, transit-oriented neighborhood anchored by a Metrorail station.

1.2 NEPA Process

The North Potomac Yard Small Area Plan noted that a final station location decision would be subject to coordination among stakeholders, resolution of environmental issues, and consideration of alternatives through the National Environmental Policy Act (NEPA) process.

In 2011, the City of Alexandria initiated an Environmental Impact Statement (EIS) under NEPA for construction of the proposed Potomac Yard Metrorail Station. The lead Federal agency for the EIS is the Federal Transit Administration (FTA) and the City is the project co-lead and sponsor. WMATA and the National Park Service (NPS) are cooperating agencies. As part of this process, a Draft EIS was released on March 27, 2015.

The Draft EIS will be circulating for public review and comment through May 18, 2015 during which time there will be two public hearings (on April 30 and May 16) as well as a range of public involvement activities, described in more detail in Section 2.0. Following the public comment period, City Council will select a preferred alternative,

The Final EIS will be prepared over the six months following identification of the preferred alternative. The Final EIS will include further design and refinement of the preferred alternative to minimize community and environmental impacts, identify with more detail the impacts of the preferred alternative, and develop measures for avoiding, minimizing, or mitigating adverse

impacts. Options for avoidance of impacts and mitigation will be discussed at meetings of the Potomac Yard Metrorail Implementation Work Group and the appropriate boards and commissions, where there will also be opportunities for public comment.

FTA and NPS will then each issue a Record of Decision (ROD), which will present the basis for the decision, specify the environmentally preferable alternative, and detail the commitments made to avoid, minimize, or mitigate the adverse impacts. The ROD will close out the NEPA process and allow the project to move into the design and construction phase.

The Section 106 process has been integrated into the NEPA process. The Section 106 review process identifies whether there are any historic properties in the Area of Potential Affect and whether they may be adversely affected by the undertaking. The Section 106 process also seeks to mitigate any potential adverse effects to historic properties.

1.3 Alternatives Considered

As noted in Section 1.2, the Draft EIS evaluates technically feasible alternatives that meet the project's purpose and need, as well as the No Build Alternative. The purpose of the Potomac Yard Metrorail station project is to improve local and regional transit accessibility to and from the Potomac Yard area adjacent to the U.S. Route 1 corridor for current and future residents, employees, and businesses. The need for the project includes:

- **Access to Regional Transit:** The area is currently not served by direct access to regional transit services, such as Metrorail. Although the area is served by local bus services that operate in the U.S. Route 1 corridor, including the Crystal City/Potomac Yard Transitway (also known as "Metroway"), direct access to the Metrorail system will facilitate regional transit trips.
- **Congestion Relief:** Traffic congestion will increase on U.S. Route 1 even without the proposed development in Potomac Yard. Increasing the share of transit trips would help to manage congestion, reduce auto trips and emissions along transit corridors, and make efficient use of existing infrastructure.
- **Additional Transportation Options:** Due to the constrained capacity of the existing roadway network, additional transportation options are needed to support redevelopment plans by accommodating travel demand through transit and other non-auto modes.

The Draft EIS evaluates three Build Alternatives (A, B, and D), as well as a design option (B-CSX Design Option). This design option was developed in 2013 at the request of NPS in an effort to avoid and minimize adverse impacts to the George Washington Memorial Parkway (GWMP). The alternatives and their potential impacts are described in more detail in the Draft EIS and the Executive Summary to the Draft EIS, provided in Appendix A. The potential station locations are shown in Figure 1.

The Draft EIS evaluates two construction access options for Alternatives A and B: access primarily via the GWMP (Option 1) or via Potomac Greens Drive (Option 2). Both options were evaluated in order to understand the potential impacts. However, NPS policy and federal regulations prohibit commercial vehicles on the GWMP if another option is available.

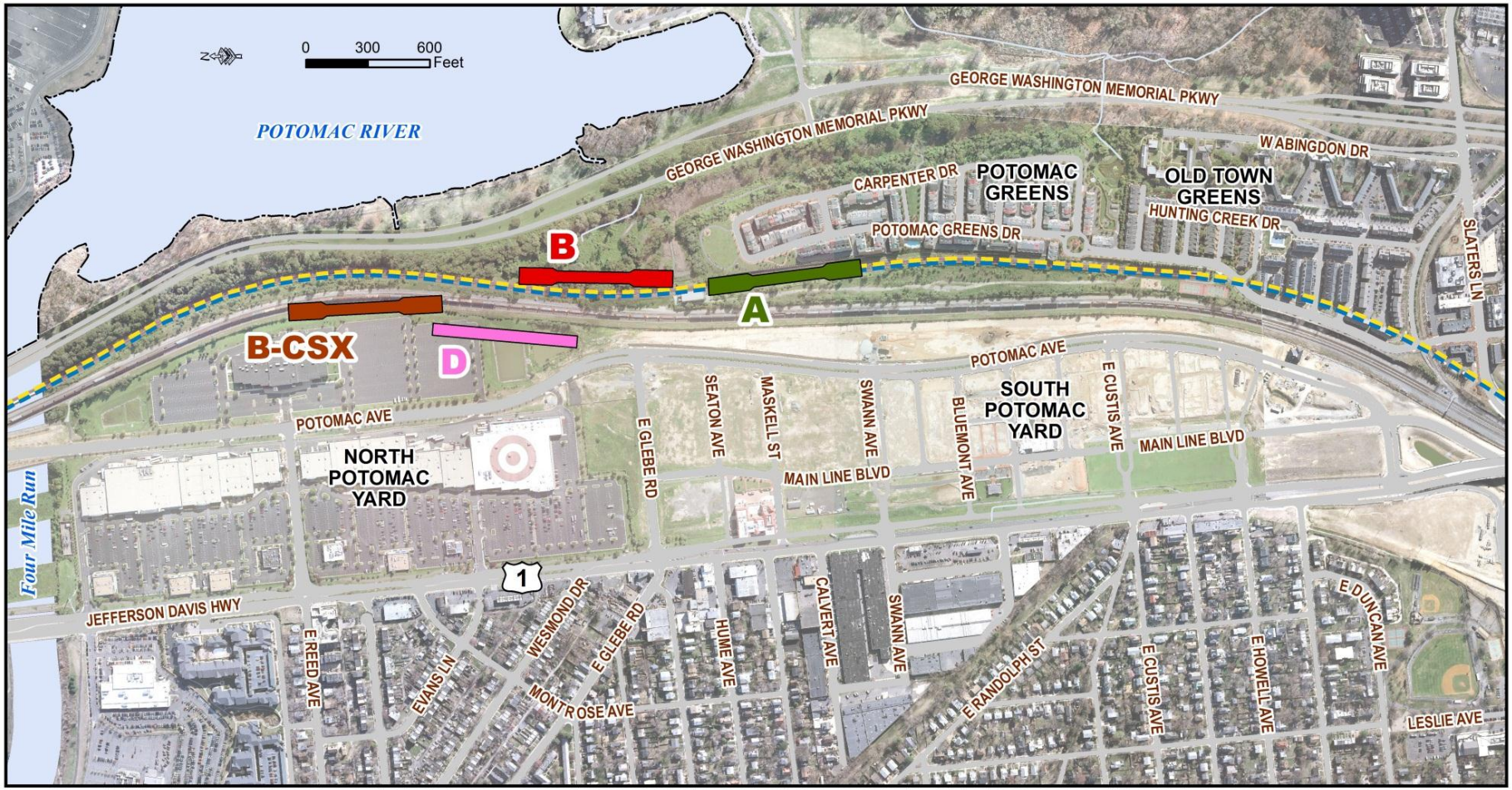
Alternative B best serves the purpose and need of the project and will have the most positive impact on the future development of Potomac Yard. Specifically:

- **Alternative B** would provide a Metrorail station in Potomac Yard and improve regional transit accessibility. Alternative B places the most amount of density in North Potomac Yard within walking distance of the proposed station, thereby enabling the highest density and greatest mix of uses, including office uses, to be constructed. Alternative B produces the most trips taken by transit and encourages a variety of transportation options due to the dense mix of uses that it enables. Alternative B, which is estimated to cost $268 million, has the most economic, community, and transportation benefits of all the alternatives. It also provides benefits to users of the GWMP through the mitigation proposed in the framework for the Net Benefits Agreement with the National Park Service (see Section 4.1 and Appendix B). **Staff recommends Alternative B as the preferred alternative for Potomac Yard with construction access Option 2 (not from GWMP).** Construction access Option 2 is recommended because NPS cannot issue permits for access from the GWMP (Option 1) based on NPS policy and federal regulations.

Staff does not recommend the No Build Alternative, Alternatives A or D, or the B-CSX Design Option for the following reasons:

- The **No Build Alternative** would not improve the regional transit accessibility of Potomac Yard. The lack of direct access to the Metrorail system would result in a higher proportion of trips being taken by car. The lack of a Metrorail station would also result in a less diverse mix of uses in Potomac Yard, including significantly less office development, which would result in less economic benefit to the City and fewer benefits to neighborhoods in the Potomac Yard area.
- **Alternative A** would provide a Metrorail station in Potomac Yard, and would therefore improve regional transit accessibility. However, it would be located the farthest from the dense redevelopment and planned office uses in North Potomac Yard. This would result in fewer trips taken via transit. Because North Potomac Yard would be farther from the new station, the planned redevelopment would have less density and fewer office uses than in the approved plan, resulting in a decreased economic benefit to the City and fewer benefits to surrounding neighborhoods when compared to Alternative B. Alternative A, which is estimated to cost $209 million, would also be located directly behind townhouses in the Potomac Greens neighborhood, resulting in more adverse impacts to that neighborhood, including noise impacts from operation of the station. Alternative A is also located in the widest part of Potomac Yard Park and would impact the existing Park more than the other alternatives.
- **B-CSX Design Option** would provide a Metrorail station in the northern portion of Potomac Yard and improve regional transit accessibility. However, it would require the use of 5 acres of land in North Potomac Yard that is currently available for development. It would therefore reduce the amount of development possible in North Potomac Yard. The station would cost an estimated $351 million, which is approximately $83 million more than Alternative B and would require the cooperation of CSXT to relocated existing tracks. However, CSX has not yet agreed to move their tracks. For these reasons, it would also require at least a 3 year delay in the opening of the station.
-

Figure 1: Draft EIS Potential Station Locations



LEGEND

- Alternative A Station Location
- Alternative B Station Location
- B-CSX Design Option Station Location
- Alternative D Station Location
- Existing Metrorail Blue/Yellow Line

Note: Trackwork and Bridges not shown

Source: City of Alexandria; Arlington County; District of Columbia; WMATA

POTOMAC YARD METRORAIL STATION EIS

- **Alternative D** would provide a Metrorail station in the northern portion of Potomac Yard and improve regional transit accessibility. However, it would require the use of 3 acres of land in North Potomac Yard that is currently available for development. Therefore, it would reduce the amount of development possible in North Potomac Yard. It would also cost an estimated $493 million, which is not financially feasible, as described in Section 1.4. The elevated guideway required for Alternative D would negatively affect views from the GWMP, would reduce the functionality of Potomac Yard Park, and would have negative impacts to residents of Potomac Greens.

1.4 Funding and Financial Feasibility

The current financing plan for the Potomac Yard Metrorail Station assumes that the bulk of the capital costs will be paid for using new Potomac Yard-generated tax revenues and developer contributions. The City has established the Potomac Yard Metrorail Station Fund, the proceeds of which are to be used solely for the design, construction, and financing of the station and will be segregated from other revenues. The Station Fund will accumulate revenue from the following sources and mechanisms:

- **Net new tax revenue**: for new tax revenue generated by new development in Potomac Yard, a fixed set of percentages will go to the General Fund to pay for City services and schools that the new Potomac Yard residents and businesses will need. A portion of the new net tax revenue will go to the Station Fund to pay debt service and station-related operating costs. The remaining balance would be deposited in the City's General Fund to provide benefits citywide for Alexandria residents and businesses.
- **Special tax districts**: two special tax districts have been established to generate revenue for the Station Fund (see Figure 2, Special Tax Districts). The Tier I special tax district applies to non-single family development and collects 20 cents per $100 of valuation. Collections began in 2011. The Tier II special tax district would apply to single-family and condominium development in the lower part of Potomac Yard and would assess 10 cents per $100 of valuation. Collections would begin in the calendar year after the station opens.
- **Developer contributions**: for Alternative B, CPYR, Inc., the owner of North Potomac Yard, agreed in 2010 to contribute up to $49 million in 2010 dollars, indexed to inflation, some of which could be accelerated as a shortfall guarantee. CPYR's representatives have subsequently indicated they wish to renegotiate their previously agree-to contribution downward. Discussions about amending their existing obligation would occur in 2016 when a replanning of some elements of the 2010 North Potomac Yard Small Area Plan is contemplated. The Potomac Yard Metrorail Station financing plan substantially benefits from, but does not require, the previously agreed to CPYR contribution level to remain financially feasible.

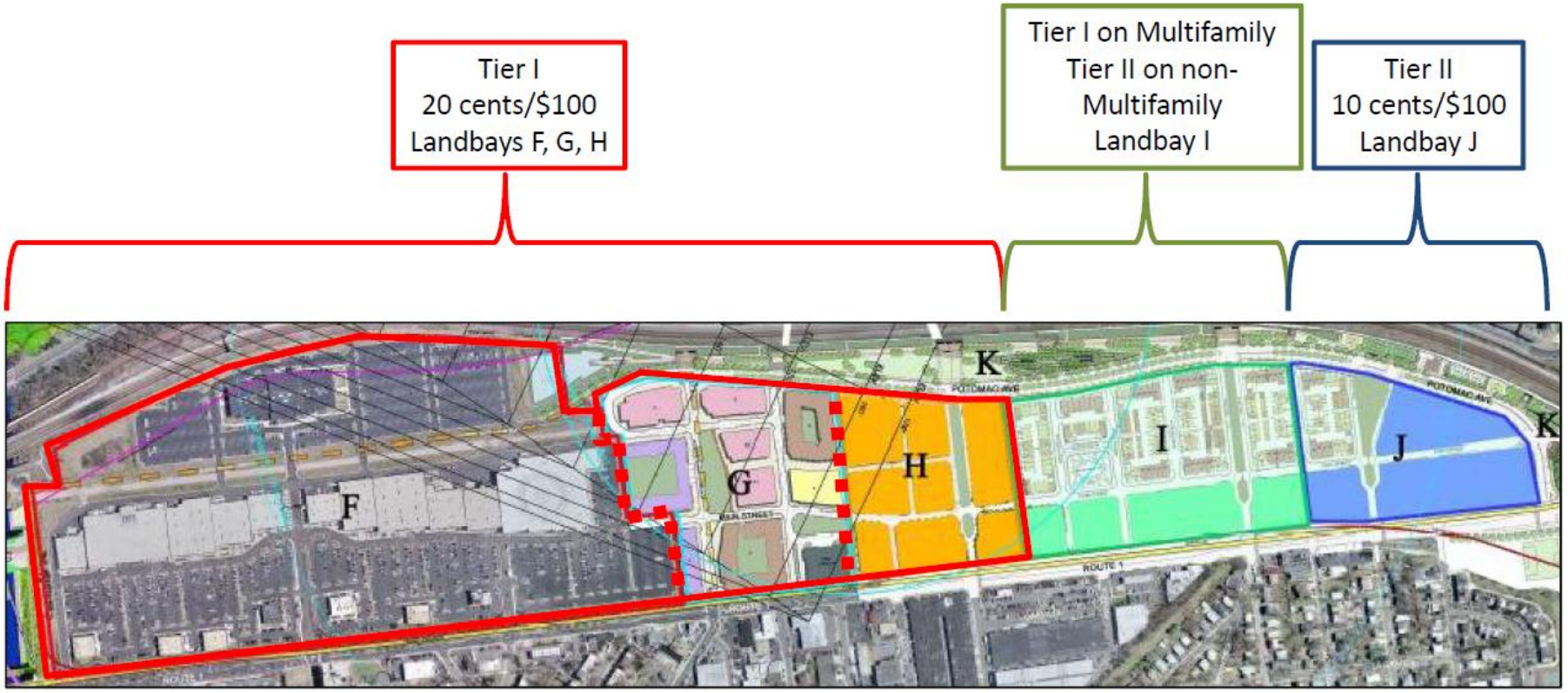
  MRP and PYD, the developers of the southern portion of Potomac Yard, have agreed to contribute $2 million.

The revenue sources described above will be used to pay back borrowings from two sources:

- **General Obligation Bonds:** The City will fund the station construction costs not funded through other sources by issuing general obligation bonds. The bond issuance will be structured to minimize debt service in the early years, with a gradually increasing annual principal repayment over the 30 year amortization period.

Figure 2: Special Tax Districts

Tier I	• Special tax of 20 cents per $100 of valuation applied to Landbays F, G, H, and the multifamily portion of I. • Collections began in 2011.
Tier II	• Special tax of 10 cents per $100 of valuation applied to the non-multifamily development in Landbay I and all of Landbay J. • Collections will commence the first calendar year after the station opening.



- **Virginia Transportation Infrastructure Bank (VTIB)**: The City was recently awarded a $50 million loan from the Virginia Transportation Infrastructure Bank. The low interest rate of the loan (2.17 percent) reduces borrowing costs by lowering the overall debt service associated with total borrowing requirements for construction of the station. The flexible terms of the VTIB loan repayment reduce the City's risk as new development is anticipated to generate new revenues utilized for the repayment of principal and interest associated with the loan.

In order to reduce the total amount borrowed for station construction, the City has planned to request $69.5 million from the Northern Virginia Transportation Authority. In addition, the City will be applying for up to $50 million in TIGER grant funds from the U.S. Department of Transportation.

Financial Feasibility

Project budget cost estimates were developed by WMATA as part of the Draft EIS process and were based on the preliminary engineering completed to date. Costs were escalated to the midpoint of construction based on an assumed completion date of late 2018 for Alternatives A, B, and D and late 2021 for Design Option B-CSX. Estimated costs included a range from low to high. The financial feasibility analysis assumed 85 percent of the high end of the cost estimate range, shown in Table 1.

Table 1: Estimated Cost of Potomac Yard Metrorail Station Alternatives

Alternative	Alt A	Alt B	Design Option B-CSX	Alt D
Estimated Cost (millions)	$208.8	$268.1	$351.4	$492.7

The financial feasibility analysis found the Alternatives A and B and Design Option B-CSX have positive cash flow that cover the debt service and operating costs from the first year. However, Alternative D has a substantial funding shortfall that lasts for 10 years from the opening of the station and which makes Alternative D financially not feasible.

2.0 COMMUNITY INPUT

Significant community engagement and outreach have occurred during the last four years of the NEPA process. Public outreach and agency coordination for the EIS began in February 2011 with the Scoping meeting, and open community meetings were held in 2012 to provide updates on the project progress. The Potomac Yard Metrorail Implementation Group (PYMIG) was established in June 2011 to review the EIS document, provide policy guidance to the City and WMATA staff, analyze station concept refinements, and consider funding issues related to the new Metrorail station. PYMIG met regularly for four years to discuss the project with staff. Topics discussed included station alternatives, the screening process, key environmental considerations and impacts, funding, community outreach and other issues documented in the Draft EIS. The public was invited to attend each PYMIG meeting as well as the community meetings for the NEPA process mentioned above. In addition to the PYMIG and community meetings, staff presented to various boards, commissions and community groups in to provide updates on the Draft EIS throughout the process.

Since February 2015, staff has met with numerous boards, commissions, and community groups in preparation for the release of the Draft EIS. Staff met with the following five City boards and commissions:

- Board of Architectural Review (Old and Historic District)
- Environmental Policy Commission
- Park and Recreation Commission
- Planning Commission
- Transportation Commission

Staff also met with the following nine community groups at their standing meetings or upon request, and reached approximately 250 residents at these meetings:

- Del Ray Citizens Association
- Federation of Civic Associations
- Hume Springs Citizens Association
- Lynhaven Citizens Association
- NorthEast Citizens Association
- Old Town Civic Association
- Old Town Greens Townhome Owners Association
- Potomac Greens Home Owners Association
- Potomac Yard residents

The City has also held three informational open houses to discuss the results of the Draft EIS, which reached approximately 100 residents.

There has also been extensive print, broadcast, and electronic media coverage at each stage of this Draft EIS process.

The extensive public outreach efforts have garnered community feedback on a variety of issues. Comments from the public related to Alternatives A, B, and D and the B-CSX Design Option are summarized in Appendix C. Additional comments received following release of this report will be included as a separate attachment to City Council prior to their decision on the preferred alternative.

Many residents have expressed support for Alternative B based on its potential to positively affect the development of Potomac Yard, its citywide economic benefits, and its transportation benefits. Residents who support Alternative B have noted some concerns about some of the potential negative effects. These potential negative effects are the same or similar to effects that may occur with Alternative A. The most frequently noted concerns related to the effects of Alternative B include:

- Construction: Construction access for Alternative B could come through Old Town Greens and Potomac Greens. Some residents have expressed concern about traffic

from construction trucks using neighborhood streets, particularly where there are children playing. Noise, vibration, and dust from construction activities could be disruptive to residents, particularly when construction takes place at night and on weekends.

- Parking and Traffic: The station is designed as an urban station, with the majority of riders expected to arrive on foot or bicycle. Bus riders would access the station from Potomac Avenue. Some residents have expressed concern about traffic from cars using neighborhood streets to access the Metrorail station. Because the station will not include any park-and-ride lots, residents have also expressed concern that Metrorail riders will park on neighborhood streets.

- The George Washington Memorial Parkway (GWMP): Alternative B would be located partially on land currently occupied by a scenic easement administered by NPS, and would require approximately 7,000 square feet of GWMP property. The GWMP is an important resource commemorating the nation's first president, which was designed to provide a quality entryway for visitor's to the nation's capital. Some residents are concerned about impacts to the GWMP, particularly that a visible Metrorail station will degrade the quality of this resource. NPS has indicated Alternative B is viable providing that a mitigation plan acceptable to NPS can be agreed to. The City and NPS have reached agreement on a mitigation framework which will be of net benefit to NPS and the GWMP. This framework is described in Section 4.1 and Appendix B.

- Parks: Access points to the Metrorail station would be located in Potomac Greens Park and Potomac Yard Park, near existing multi-use trails. Some residents are concerned that these access points would negatively affect their use and enjoyment of the parks.

- Wetlands: Alternative B would impact wetlands to the north of Potomac Greens. Some residents have expressed concern over both the permanent impacts and the temporary impacts resulting from the staging area for construction as currently designed.

- Crime: Some residents of Potomac Greens and Old Town Greens have noted that their neighborhoods are relatively isolated, with only one access point to Slaters Lane. They have expressed concern that adding an access point to Metrorail would increase the opportunity for crime in their neighborhood.

- Financial Feasibility: Some residents have expressed concern that the station would need to be paid for using monies from the General Fund if the development of Potomac Yard does not proceed as expected.

In recommending Alternative B as the preferred alternative, City staff also recommends that special attention be paid to these concerns as the project advances, and that efforts be made to avoid, minimize, or mitigate negative impacts to the extent feasible. Additional detail is provided in Section 4.0 regarding how these concerns should be addressed.

2.1 Role of Boards and Commissions

This staff recommendation will be discussed with relevant boards and commissions, as well as the Potomac Yard Metrorail Implementation Work Group (PYMIG). There will be opportunity for public comment at each meeting. Each board or commission is asked to comment on the staff recommendation as it relates to the issues within their purview as outline below.

- The **Board of Architectural Review (BAR)** will provide comments on potential visual impacts from the GWMP. The comments will be forwarded to City Council. In addition, if Alternative B is selected the final design of the station will be subject to review and approval by the BAR.
- The **Environmental Policy Commission** will determine if the staff recommendation adequately balances environmental impacts in accordance with the Eco-City Alexandria Charter.
- The **Planning Commission** will evaluate the consistency with the Master Plan, Potomac Yard Coordinated Development District(s) and associated approvals.
- The **Parks and Recreation Commission** will determine if the staff recommendation is consistent with local park plans.
- The **Transportation Commission** will determine if the staff recommendation is consistent with the City's 2008 Transportation Master Plan.
- **PYMIG** will consider the comments of the other boards and commissions and will determine whether the staff recommendation is consistent with land use and transportation plans for Potomac Yard.

3.0 STAFF ANALYSIS

Staff recommends that City Council adopt Alternative B as the Locally Preferred Alternative (LPA) for the Potomac Yard Metrorail Station for the following reasons.

An evaluation of the costs and benefits of each of the alternatives shows that, while each of the alternatives meets the goal of providing a Metrorail station in Potomac Yard, only Alternative B provides the mix of benefits to land use and economic development, neighborhoods, and transportation that will help to realize the full vision for Potomac Yard. Alternative B also provides the best opportunity to balance impacts and benefits to the community. See Section 4.0 for recommendations regarding mitigation to impacts identified by the community as areas of particular concern.

3.1 Land Use and Economic Benefits

Only Alternative B is consistent with the City's land use plans. The North Potomac Yard Small Area Plan created a vision of North Potomac Yard as an area for long-term economic growth within the City. The development of a transit-oriented, mixed use community that maximizes office development adjacent to the Metrorail station is the central focus of the plan. North Potomac Yard is uniquely located within the City and has strong potential as a site for office development due to its close proximity to Washington D.C., Ronald Reagan Washington National Airport, and the Pentagon. However, significant office development is unlikely without a Metrorail station.

Office development is a critical component for a strong and sustainable tax and employment base, and Alternative B provides approximately 950,000 square feet more office within one-quarter mile of the Metrorail station than Alternative A.

In order to achieve this vision and the density of 7,525,000 square feet of development planned for North Potomac Yard, and therefore the greatest economic and employment benefit for the City of Alexandria, it is necessary to locate the station at Alternative B. All other station locations would require a reduction in the amount of development, office use and economic value for the City (3,700,000 square feet of development is permitted if any other alternative is selected).

Alternative B provides for maximum accessibility to the Metrorail station, with the entire North Potomac Yard development within one-half mile of the Metrorail station, and more than 50 percent of the blocks located within one-quarter mile (see Figure 3, Blocks within ¼-mile and ½-mile of Alternative B). In addition, the blocks south of the existing retail center and adjacent to the southern landing of Alternative B contain the greatest amount of office space in South Potomac Yard. Alternative B is located approximately 900 feet (approximately three Old Town blocks) farther north than Alternative A. This is a critical difference, as the likelihood of office workers riding Metrorail is particularly sensitive to distance from the station. The importance of proximity is reflected in the fact that currently 86 percent of all office buildings under construction in the region are within one-quarter mile of a Metrorail station (PlanItMetro.com, April 22, 2015). Given the increasing regional competition for commercial office development, the location of a Metrorail station at the site of Alternative B will maintain Potomac Yard's strength in this market. In addition, for the Washington, D.C. metropolitan area, Alternative B represents the best smart growth choice because it enables the most development in a walkable, transit-oriented, mixed-use community close to the region's core.

3.2 Public Benefits

The development of North Potomac Yard is grounded on the principle of a dynamic mixture of uses, with significant amounts of retail development and a balance of residential and office uses. The North Potomac Yard Plan established Alternative B as the focal element for the Metro Square neighborhood, and the neighborhood as the transit hub of North Potomac Yard.

Constructing a Metrorail station at Alternative B also serves the mobility and economic development needs of surrounding communities, including Del Ray, Potomac Greens, Arlandria, and Lynhaven. For many of these current residents, who cannot currently walk to Metrorail, the Metrorail station and future employment locations will be within a one-half mile to one mile walk.

The ability of the City to provide public amenities such as community facilities is significantly affected by the presence and location of a Metrorail station. The location of the Metrorail station at Alternative B leads to a substantial increase in property value. Based upon this increase the developer is required to provide community facilities and services.

Figure 3: Blocks within 1/4-mile and 1/2-mile of Alternative B

In addition to the basic infrastructure, these include improvements to Four Mile Run, extending and expanding the Potomac Yard Park, a significant amount of neighborhood-serving retail uses, provision of a live performing arts theater, and land and partial funding for the construction of a school.

3.3 Transportation Benefits

The vision for Potomac Yard relies on creating an environment where residents, employees, and visitors travel by modes other than the automobile. This is consistent with the City of Alexandria's 2008 Transportation Master Plan, which focuses on providing transit, bicycle, and pedestrian infrastructure in conjunction with land use planning to create layers of transportation options.

Alternative B would provide the greatest number of Metrorail riders and remove the most automobile trips from area roadways. Because it enables the highest density and greatest mix of uses in North Potomac Yard, Alternative B would result in more trips being taken within Potomac Yard, many of which would occur on foot or bike. Finally, more office development in Potomac Yard would also help to balance existing Metrorail ridership, by encouraging reverse commuting (as has been seen with the Silver Line in Tysons Corner and the Orange Line in Arlington).

3.4 Citywide Economic Benefits

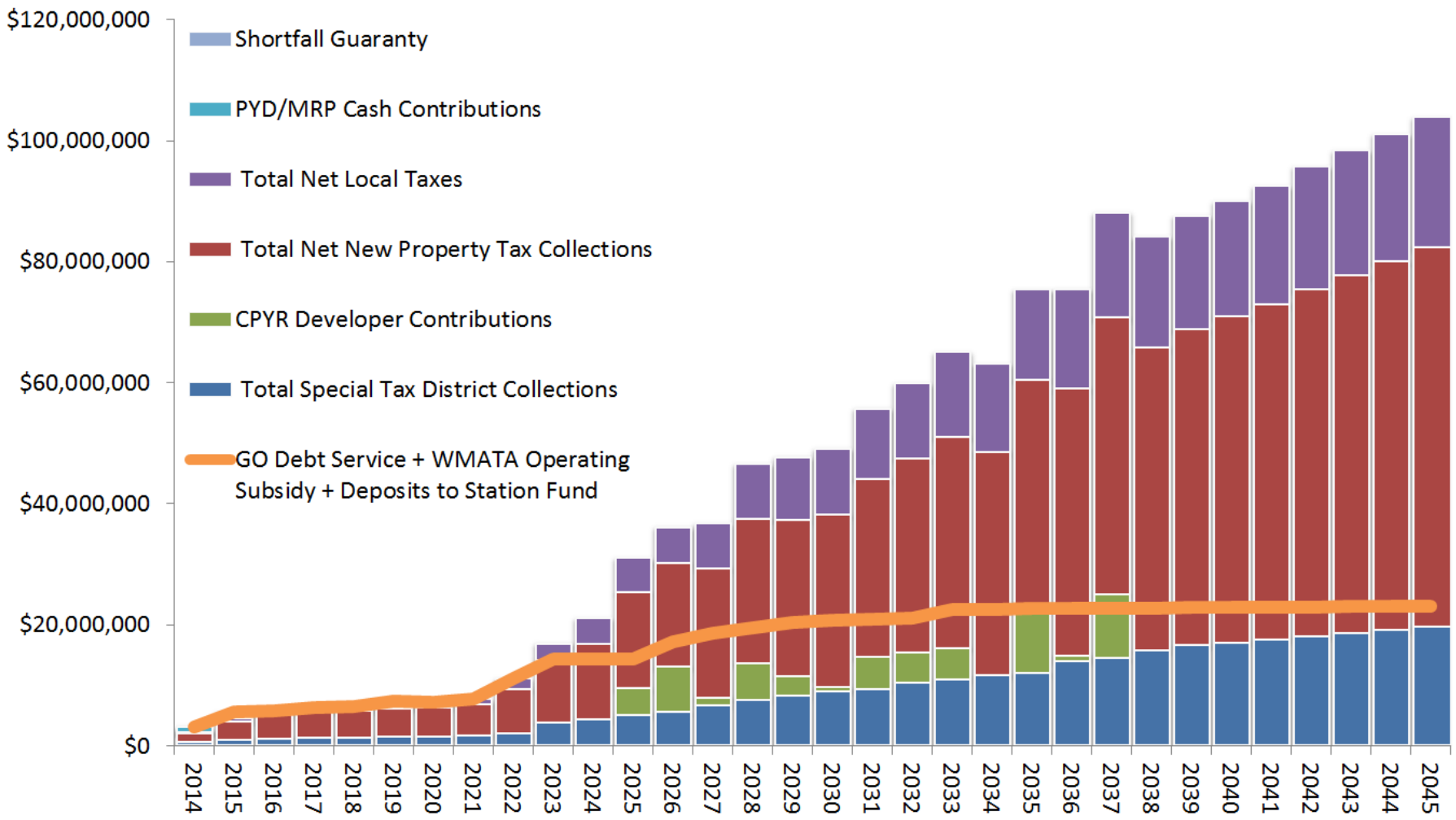
Projections show that a Metrorail station at Alternative B will result in approximately $1.5 billion in net revenue to the City over forty years. By the end of that period, the development in Potomac Yard will be producing approximately $98 million of revenue every year beyond what is needed to pay for the station and City services for the residents and businesses in Potomac Yard (see Figure 4, Alternative B Cash Flow). This means that the redevelopment of Potomac Yard will be producing $98 million every year that can be used to pay for services and amenities throughout the City.

4.0 STAFF RECOMMENDATION FOR THE PREFERRED ALTERNATIVE

Staff recommends that City Council select Alternative B with Construction Access via Potomac Greens (Option 2 - no access from GWMP) as their preferred alternative, based on its ability to enable the high-density mix of uses envisioned for North Potomac Yard, and the associated community, transportation, and economic development benefits.

Staff recommends that during refinement of the preferred alternative through the Final EIS process and as design advances, the City continue to pursue strategies to avoid, minimize, or mitigate adverse impacts to the community, natural, and cultural resources, including but not limited to the strategies outlined below. This will also include looking at alternative construction access options to reduce the dependence on access through Potomac Greens. Because Alternative B would require a land exchange and release of the Greens Scenic Easement from the National Park Service, staff recommends that the City enter in to a Net Benefits Agreement with NPS to include the elements outlined in Table 2 and Appendix B.

Figure 4: Alternative B Cash Flow



Mitigation measures suggested below will be confirmed during the Final EIS or at later stages when the details of the project components and the construction scenarios are further developed.

4.1 George Washington Memorial Parkway

The George Washington Memorial Parkway is an important resource for the City of Alexandria and the region. Alternative B impacts a small amount of National Park Service land and the Greens Scenic Area Easement. As part of the Draft EIS process potential visual impacts to the GWMP and the Greens Scenic Area Easement were analyzed and discussed extensively. The analysis included the preparation of a physical model and a video simulation to understand the impacts.

City and NPS staff have worked together to develop the framework for a Net Benefits Agreement to provide appropriate mitigation for impacts to the GWMP and Greens Scenic Area Easement, and to provide for a property exchange to allow the release of NPS property and interests (see Table 2 and Appendix B). Staff feels that these items not only provide the most benefit to the GWMP but are also a benefit to residents of the City of Alexandria. Benefits include improvements to Daingerfield Island in Alexandria and the nearby Mount Vernon Trail, which are used extensively by City residents, as well as measures to enhance the experience of Parkway users such as eliminating stormwater ponding in the median of the GWMP and additional landscaping between the station and the GWMP roadway.

The design of the prominent elements of the station, such as the roof and the pedestrian bridges will need to integrate with the character of the GWMP and the neighborhood. The final design of the station will be subject to the Board of Architectural Review (BAR). The station will also require subsequent approval of a development special use permit (DSUP) process and review by the Planning Commission and approval by City Council.

Staff will continue coordination with NPS to develop a Net Benefits Agreement based on the framework described above. Specific mitigation to screen views of the station from the GWMP should include landscaping and station design strategies to minimize the visual impact of the station.

The Draft EIS evaluates the impacts of two construction access options. Option 1 includes access from the GWMP, while Option 2 does not include access from the GWMP. Federal regulations and park policy prohibit the issuance of permits for commercial vehicles to use the GWMP when other options exist. Therefore, staff recommends that Construction Access Option 2 (not from the GWMP) be pursued for the preferred alternative.

4.2 Construction

Construction Access Option 2 for Alternative B would be via Potomac Greens Drive, the WMATA Substation Access Road, and Potomac Avenue. Potential impacts from construction include truck traffic along neighborhood roadways as well as associated noise and dust.

Staff recommends that measures to minimize construction impacts be pursued throughout the design and construction process. Enforcement of City ordinances and coordination with the community during construction will be essential to these efforts. To the extent practicable, construction activities should be conducted during the daytime and during weekdays in accordance with the City's construction management practices and existing noise ordinance.

Table 2: Mitigation Proposal for Impacts to George Washington Memorial Parkway Interests

Category	Mitigation Item
Loss of parkland	Exchange NPS fee (0.16 acres) and easement area (1.71 acres) for fee ownership of the remaining easement area in CoA ownership (13.56 acres). Exact amount to be determined as station design advances. Access for maintenance and emergency response will be maintained according to WMATA standards. City will also reserve necessary access for maintenance of stormwater facilities and other existing easements.
	Exchange NPS fee and easement area for limitations on height and other restrictions (on items such as materials, signage, and lighting) on portions of Potomac Yard adjacent to the GWMP. City agrees to establish restrictions via ordinance and will work with the property owner to potentially establish the existing maximum heights, signage and lighting as a legally binding easement.
Impact to park resources	Preparation of a stormwater management plan for Daingerfield Island and the adjacent section of GWMP (where there is a known stormwater issue)
	Implementation of a stormwater management plan for Daingerfield Island and the adjacent section of GWMP (approximately 45 acres)
	Prepare Daingerfield Island Master Plan which will address improvements to visitor services, facilities, recreation, and park amenities.
	Implementation of Daingerfield Island Master Plan
	Implement repairs and improvements to the Mount Vernon Trail in the vicinity of the project area
	Vegetation survey for south section of the GWMP (Four Mile Run to Mount Vernon) to evaluate the number, type, size, age, and health of vegetation
	Prepare landscape plan of the south section of the GWMP
	Preparation of updated NR nomination for GWMP
	Prepare Cultural Landscape Report for GWMP
	Prepare Archeological Overview and Assessment for the south section of the GWMP
	Complete Viewshed Protection Plan to include a viewshed inventory and assessment of the south section of the GWMP
	Visitor Use Survey and Visitor Use Management Plan
	Prepare Resource Stewardship Strategy
	Facility management plan including drainage plan
Visual impact minimization/mitigation	Design of station and landscape, including planting and berms, in order to mitigate the visual impact of the station on the GWMP. NPS would participate in the design process. City is working with WMATA to develop a design-build process that enables a higher level of City involvement with specific high-visibility elements of the station. NPS participation would be incorporated into this process.
TOTAL Cost	**$12,000,000**

** Mitigation for wetlands not included, as mitigation requirements would be determined through coordination with the U.S. Army Corps of Engineers, NPS, and the Virginia Department of Environmental Quality through the Joint Permit Application process in compliance with Section 404 of the Clean Water Act and Director's Order 77-1.*

The public should be adequately notified of construction operations and schedules, and procedures set in place to address complaints quickly. Operations should be conducted in a manner that will minimize, to the greatest extent feasible, disturbance to the public in areas adjacent to the construction activities and to occupants of nearby buildings. Construction management conditions are established by the Department of Transportation & Environmental Services in the plan review and permitting process, and other applicable regulations. The additional traffic due to construction vehicles may impact the roadway pavement, which will be repaired as part of the project.

4.3 Parking and Traffic

The station will be designed as an urban station. All local bus service is planned to be curbside on the west side of the station (from Potomac Avenue). The Crystal City/Potomac Yard Transitway (Metroway) will interface with the station along Potomac Avenue. The station will not have a suburban-style park-and-ride or kiss-and-ride lot. Most riders will access the station on foot or via bike, or will transfer to Metrorail from buses. However, some riders may try to park on neighborhood streets.

Staff recommends working with adjacent communities to establish residential parking zones to discourage commuter parking.

4.4 Potomac Yard Park and Potomac Greens Park

Potomac Yard Park serves as a regional park for the City of Alexandria, and the draw from adjacent neighborhoods for such features as the playgrounds, trails, and other features is significant. The southern pedestrian access point for Alternative B would touch down in Potomac Yard Park to the south of East Glebe Road, away from the most active part of the park.

At the northern end of Potomac Greens, Potomac Greens Park includes a playground as well as a passive recreation area for the residents of that neighborhood. The access point for the pedestrian/bicycle bridge for Alternative B would touch down in Potomac Greens Park.

Limiting the impacts to park features is beneficial to the larger community. Staff recommends that access points located in parks be designed to minimize impacts to the parks. To the extent practicable the access points in parks should become a feature of the park rather than an intrusion. Staff should coordinate with the community where the relocation or redesign of park uses is necessary. Any reconfiguration of Potomac Yard Park will also require an amendment to the approved development special use permit (DSUP) and review by the Planning Commission and approval by City Council.

4.5 Wetlands

Wetlands are defined as “lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface” (*Classification of Wetlands and Deepwater Habitats of the United States*, Cowardin et al. 1979). There are wetlands to the north and east of Potomac Greens, which include walking paths for recreation. As currently designed, Alternative B would affect a portion of the wetlands to the north of Potomac Greens.

Staff recommends that wetland impacts be minimized through design to the greatest extent practicable. Construction methods that avoid or minimize harm to wetlands should be investigated and implemented where practicable.

Mitigation for impacted wetlands will be determined through coordination with the United States Army Corps of Engineers and NPS, as provided for by federal regulations. Staff recommends that mitigation be a benefit to the community, where possible.

4.6 Crime

Residents of Potomac Greens and Old Town Greens have expressed concern that an additional access point to the neighborhood will increase the likelihood of crime. This is of specific concern to the residents of Potomac Greens because the neighborhood is currently isolated, with only one access point from Slaters Lane.

Staff recommends coordination with the Alexandria Police Department to address community concerns and allocate appropriate resources for the study area. Staff recommends a detailed evaluation of strategies to mitigate the risk of crime.

4.7 Financial Feasibility

The financing plan for Alternative B currently relies on a combination of sources, including revenue from the redevelopment of Potomac Yard. Residents have expressed concern that revenues may not reach the levels projected and therefore jeopardize the financial feasibility of the project.

Staff recommends that additional regional, state, and federal funding sources continue to be pursued where available. Prior to issuance of the design-build contract, assumptions in the financial feasibility analysis should be updated based on real estate performance and revised projections to ensure that the project remains financially feasible.

5.0 NEXT STEPS

Preparation of the Final EIS will begin following identification of the preferred alternative. The Final EIS will include further design and refinement of the preferred alternative to minimize community and environmental impacts, identify with more detail the impacts of the preferred alternative, and develop measures for avoiding, minimizing, or mitigating adverse impacts. The mitigation developed during the Final EIS will build on the recommendations detailed in Section 4.0.

Options for avoidance of impacts and mitigation will be discussed at meetings of the Potomac Yard Metrorail Implementation Work Group and the appropriate boards and commissions, where there will also be opportunities for public comment.

Following completion of the Final EIS, FTA and NPS will each issue a Record of Decision (ROD), which will present the basis for the decision, specify the environmentally preferable alternative, and detail the commitments made to avoid, minimize, or mitigate the adverse impacts. The ROD will close out the NEPA process and allow the project to move into the design and construction phase.

Appendix A:
Potomac Yard Metrorail Station Draft Environmental Impact Statement
Executive Summary

POTOMAC YARD METRORAIL STATION

DRAFT ENVIRONMENTAL IMPACT STATEMENT

EXECUTIVE SUMMARY

Introduction

Environmental Impact Statement for a New Metrorail Station at Potomac Yard

The Federal Transit Administration (FTA) and the City of Alexandria, in cooperation with the Washington Metropolitan Area Transit Authority (WMATA or Metro) and the National Park Service (NPS), have prepared this Draft Environmental Impact Statement (Draft EIS) under the National Environmental Policy Act (NEPA) for construction of a proposed Potomac Yard Metrorail Station. NPS is a cooperating agency because of the potential of the project to impact natural and cultural resources of the George Washington Memorial Parkway. Any action taken by NPS in conjunction with this project must be consistent with the National Park Service Organic Act, which directs NPS to "conserve the scenery and the natural and historic objects and the wild life therein" (16 U.S.C. 1). Construction would include a new Metrorail station, associated track improvements, and pedestrian bridges at Potomac Yard within the City of Alexandria. The station would be located along the existing Metrorail Blue and Yellow Lines between the Ronald Reagan Washington National Airport Metrorail Station and the Braddock Road Metrorail Station.

This document summarizes key information from the Draft EIS and gives information on opportunities to provide comments on the document. The entire Draft EIS document is available for review online at:

www.potomacyardmetro.com

Hard copies of the Draft EIS are available for review at the City of Alexandria public library and at:

Alexandria City Hall
301 King Street
Alexandria, VA 22314

The public comment period for the Draft EIS will be open until May 18, 2015. See **pages 14-15** for information on providing comments and participating in the public hearing.

Why Do We Need a Metrorail Station at Potomac Yard?

Project Purpose

The project is proposed to improve local and regional transit accessibility to and from the Potomac Yard area adjacent to the U.S. Route 1 corridor for current and future residents, employees, and businesses.

Project Need

Currently, the project area is not served by direct access to regional transit services, such as Metrorail. This area is served by local bus services that operate in the U.S. Route 1 corridor, including the Crystal City/Potomac Yard Transitway (also known as "Metroway"). Direct access to the Metrorail system will facilitate regional transit trips.

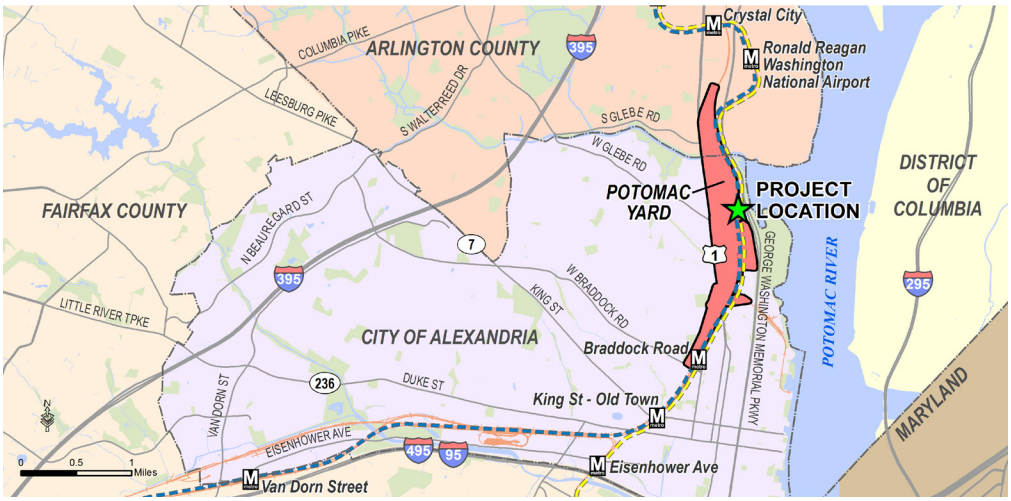
Traffic congestion will increase on U.S. Route 1 even without the proposed development in Potomac Yard. Increasing the share of transit trips would help to manage congestion, reduce auto trips and emissions along transit corridors, and make efficient use of existing infrastructure. Additional transportation options are needed to support the City of Alexandria's redevelopment plans.

Due to the constrained capacity of the roadway network, additional transportation options are needed to support the City of Alexandria's redevelopment plans by accommodating travel demand through transit and other non-auto modes. Direct regional transit access would provide more transportation choices for residents and workers and would enhance connections to regional employment and activity centers.

Planning for the Potomac Yard Area

Several initiatives have studied and proposed a Metrorail station in the Potomac Yard area:

- **1968 and 1975:** Metrorail system plans identified Potomac Yard as a site for a future Metrorail station that could benefit new development.
- **Mid-to-Late 1980s:** The draft *Alexandria 2020* plan proposed a mixed-use, neighborhood development with a Metrorail station. Operations of the existing rail yard began to be phased out.
- **1992/1999:** The City of Alexandria's *Potomac Yard/ Potomac Greens Small Area Plan* identified the potential for a Metrorail station. A 2009 revision included approval for an urban, mixed-use Town Center along East Glebe Road.
- **2010:** The *Potomac Yard Concept Development Study*, conducted by the City of Alexandria and Metro, analyzed eight potential Metrorail station locations, recommending further examination of three locations.
- **2010:** The *North Potomac Yard Small Area Plan* was adopted, envisioning replacement of the existing shopping center with a high-density, transit-oriented neighborhood anchored by a Metrorail station.
- **2011:** The current EIS study began, gathering public and agency input on the scope of the environmental study, project alternatives to be evaluated, and defining agency roles in the process.



Location of Potomac Yard and the Project

Description of Alternatives

Alternatives Considered

The Draft EIS identifies and evaluates alternatives that meet the project's purpose and need. The Draft EIS includes a "No Build Alternative," which describes what would happen if no station was built. The No Build Alternative provides a baseline to compare impacts.

Screening of Initial Alternatives

In March 2011, the project team completed scoping for the Draft EIS. A total of 36 initial alternatives were evaluated and screened to select those that were:

1. Responsive to project purpose and need;
2. Consistent with land use and development plans; and
3. Technically feasible.

Build Alternatives A, B, and D – representing three different Metrorail station locations – emerged from the scoping process. A design option of Build Alternative B, identified as "B-CSX Design Option," was developed in an effort to avoid and minimize adverse impacts of Alternative B to the George Washington Memorial Parkway, Federally owned land administered by NPS.

Alternatives Studied in the EIS

The **No Build Alternative** includes planned transportation projects expected to be finished by 2040, except the Potomac Yard Metrorail Station. These No Build projects include:

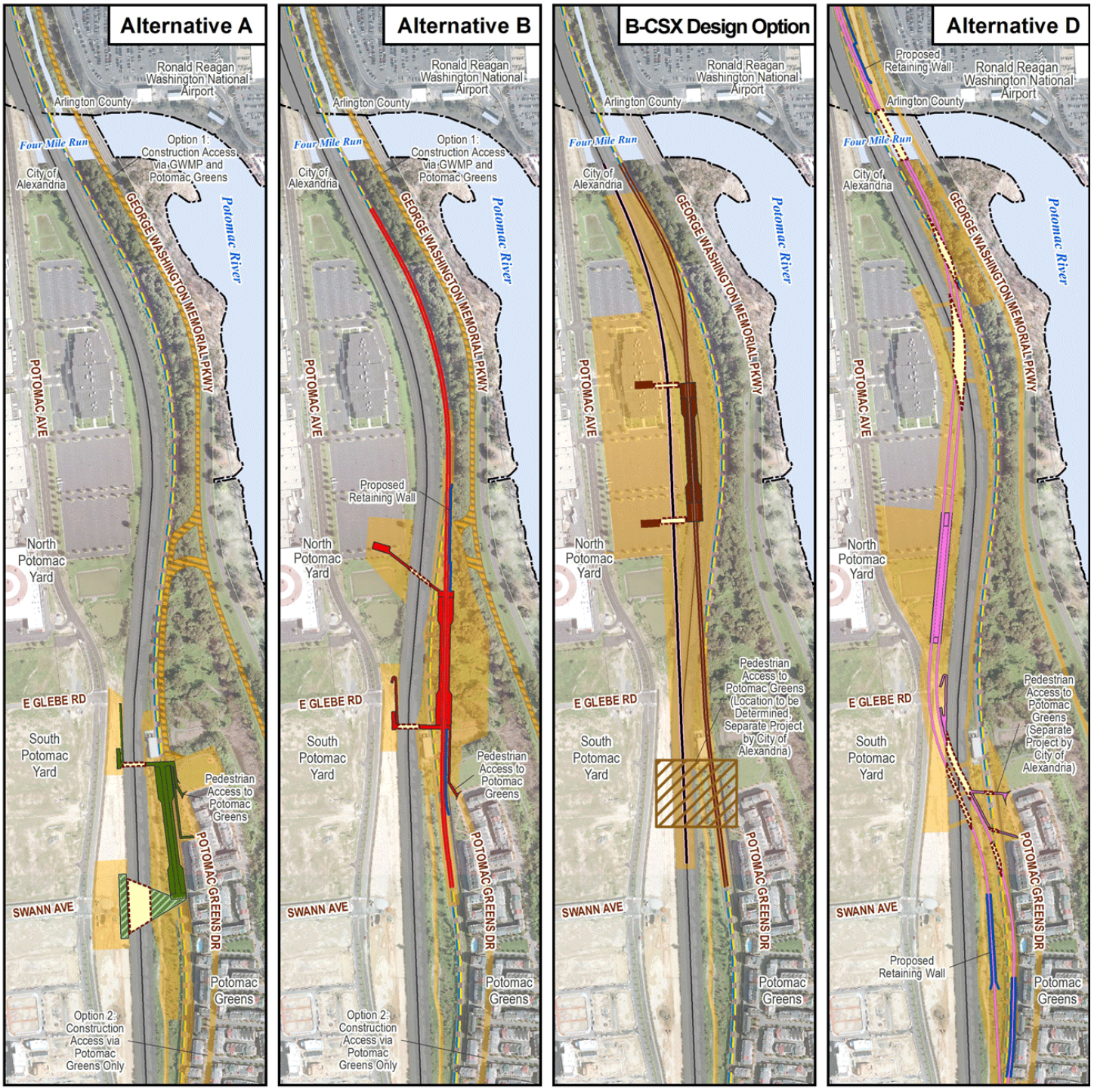
- Completion of the Potomac Yard street network and multi-use trails;
- Future pedestrian/bicycle bridge between Potomac Yard and Potomac Greens; and
- Expansion of local bus services.

The **Build Alternatives** are the three Metrorail station alternatives and design option shown on this page. Detailed depictions of each Build Alternative are provided on the following page.

Build Alternative station locations

- **Build Alternative A** is located along the existing Metrorail tracks between the CSX Transportation (CSXT) railroad tracks and the north end of the Potomac Greens neighborhood, generally within the "Metrorail Reservation" identified as part of the *Potomac Yard/Potomac Greens Small Area Plan* (1999).

Project Build Alternatives



- **Build Alternative B** is located between the George Washington Memorial Parkway and the CSXT railroad tracks north of the Potomac Greens neighborhood, and east of the existing Potomac Yard Shopping Center. Portions of Build Alternative B would be located within the Greens Scenic Area, a NPS-administered easement located within the City's Potomac Greens Park.
- **B-CSX Design Option** is located east of the existing Potomac Yard movie theater on land currently occupied by the CSXT railroad tracks. This design option of Alternative B would require relocation of the CSXT tracks to the west, providing the room necessary for the station and realigned Metrorail track to avoid George Washington Memorial Parkway property and the Greens Scenic Area easement.
- **Build Alternative D** is located west of the CSXT railroad tracks near the existing Potomac Yard Shopping Center. The alternative would require elevated tracks starting north of Four Mile Run, crossing over the CSXT tracks into Potomac Yard, and then crossing over the CSXT tracks again to reconnect to the existing Metrorail line behind Potomac Greens.

Station Design

- Build Alternatives A, B, and B-CSX Design Option would have station platforms at the same level as the existing Metrorail tracks, with elevated entrance mezzanines providing two pedestrian bridges from the station over the CSXT railroad tracks to Potomac Yard.
- Build Alternative D would have an elevated station platform with a ground floor mezzanine entrance.

Pedestrian Connections

- Build Alternatives A and B would provide 24-hour pedestrian/bicycle access between Potomac Yard and Potomac Greens via one of their two pedestrian bridges.
- B-CSX Design Option and Build Alternative D would have separate pedestrian/bicycle bridges providing 24-hour access between Potomac Yard and Potomac Greens.

Construction Access and Staging

Construction activities would occur within identified staging areas and access routes shown on page 4. Construction activities for the project would last approximately two years. Opening of the station was assessed in the Draft EIS for the year 2016 based on previous project schedule assumptions. The schedule and anticipated opening year will be updated in the Final EIS.

Two construction access options for **Build Alternatives A and B** were assessed in the Draft EIS:

- *Option 1* – access to construction staging areas from the George Washington Memorial Parkway, Potomac Greens Drive, and the Rail Park, with relatively limited construction access from Potomac Yard.
- *Option 2* – access to construction staging areas from Potomac Greens Drive and the Rail Park, with relatively limited construction access from Potomac Yard, and no access from the George Washington Memorial Parkway.

B-CSX Design Option construction access would be provided from the Rail Park and Potomac Yard. **Build Alternative D** construction access would be provided from the George Washington Memorial Parkway, Potomac Greens Drive, the Rail Park, and Potomac Yard.

Commercial vehicles are prohibited from the George Washington Memorial Parkway, with limited exceptions, under *NPS Management Policies 2006* (9.2.1.2.1) and Federal regulations (36 CFR 5.6). The NPS policies state that "commercial traffic will be prohibited on roads within parks, except for the purpose of serving park visitors and park operations (9.2.1.2.1)." If access to private lands is otherwise not available, the park Superintendent has the discretion to issue permits for commercial vehicles. The proposed construction project areas for Build Alternatives A and B are accessible from locations other than the George Washington Memorial Parkway. However, since

potential impacts would occur to residential communities at these other locations, construction access from the George Washington Memorial Parkway was also studied as an option in the Draft EIS.

Potential Benefits of the Project

Project Benefits

A new Metrorail station would serve residents, employees, and visitors, providing mobility benefits and supporting the City of Alexandria's redevelopment plans for Potomac Yard by helping accommodate higher-density, mixed-use development.

Transportation Benefits

- A Metrorail station in Potomac Yard would provide Metrorail access for thousands of Alexandria residents, employees, and visitors.
- Direct access to Metrorail would maximize the number of people taking transit to and from the Potomac Yard area.
- Additional high-density development, supported by Metrorail, would mean thousands of trips would stay in the community and allow more people to walk or bike to destinations in Potomac Yard to take care of their daily needs.

How Much Development is Permitted in Potomac Yard?

The amount of residential and commercial development in Potomac Yard will vary depending on the location of a new Metrorail station.

- Levels of development currently permitted are based on the City's North Potomac Yard Small Area Plan (2010) and adopted zoning, which assume the construction of a Metrorail station in the vicinity of Build Alternative B.
- Currently, a total of 13.075 million square feet of residential, commercial and office development are allowed in Potomac Yard.
- If the No Build Alternative or a different station location other than Build Alternative B is chosen, current zoning restricts the amount of development to 9.250 million square feet.
- B-CSX Design Option and Build Alternative D would occupy otherwise developable land in Potomac Yard, and Build Alternative A would be located too far from the northern end of Potomac Yard to adequately support the densest levels of redevelopment for the existing shopping center site.

Transportation Benefits of a Potomac Yard Metrorail Station		
	10,000-11,300	Daily boardings at a Potomac Yard Metrorail Station
	34%	Daily trips taken by transit, walking, or bike
	5,000	Daily auto trips removed from the road

U.S. Route 1 at Potomac Yard

Development Benefits

- A new Metrorail station would **support the City of Alexandria's redevelopment plans by providing regional transit access to Potomac Yard**, helping offset automobile trips and traffic congestion caused by the current and future development already approved.
- Depending on the location of a new Metrorail station, **additional high-density residential and commercial development is permitted** in Potomac Yard under current plans and zoning.
- If no Metrorail station is provided, then less development would be permitted in Potomac Yard.

Existing Potomac Yard Shopping Center

Artist's rendering of planned North Potomac Yard Redevelopment

Support for the Project Purpose and Need

The table below evaluates how the different alternatives would support the project purpose and need.

Evaluation Measure	No Build Alternative	Build Alternatives			
		Alternative A	Alternative B	B-CSX Design Option	Alternative D
Project Purpose: Improving regional transit accessibility					
Regional transit access to Potomac Yard	No	Yes	Yes	Yes	Yes
Project Need: Providing additional transportation choices for residents and workers					
Additional transportation choices for residents and workers	No	Yes	Yes	Yes	Yes
Project Need: Increasing the share of transit and other non-auto trips					
Increased share of trips by transit, bike, and walking compared to Potomac Yard without regional transit access	No	Yes	Yes	Yes	Yes
Project Need: Supporting City of Alexandria redevelopment plans					
Total Potomac Yard development volume (million square feet) permitted under approved plans	9.250 M	9.250 M	13.075 M	9.250 M	9.250 M

Costs and Funding Sources

Estimated Capital Costs

Capital cost estimates are preliminary and based on conceptual engineering completed to date. Capital costs include all costs necessary to construct the station.

Capital Funding Sources

The City has created the Potomac Yard Metrorail Station Fund to manage the revenues collected for the project. Proceeds from the fund are to be used solely for the design, construction, and financing of the station and will be accounted for separately from other City revenues. Fund revenue comes from:

- Net new tax revenues generated by Potomac Yard development (beyond taxes to pay for City and School services);
- Two special tax districts in Potomac Yard; and
- Developer contributions.

Other opportunities for federal or state funds for construction include Surface Transportation Program funds, loans through the Transportation Infrastructure Financing Innovation Act (TIFIA), additional funding from the Northern Virginia Transportation Authority, and a $50 million loan through the Virginia Transportation Infrastructure Bank (VTIB).

Operating Costs and Funding Sources

The Potomac Yard Metrorail Station would add system-wide operating costs to Metrorail. The City of Alexandria's share of the WMATA operating subsidy for Metrorail is 5.1 percent, or approximately $10 million in FY2013. The addition of one station and an estimated 5,000 additional City residents would increase the City's share to 5.3 percent under the approved allocation formula, requiring an additional $1.39 million annual contribution. The City plans to fund the additional WMATA subsidy using the Potomac Yard Metrorail Station Fund.

Conceptual Capital Costs (millions of 2016 Dollars)*

Build Alternative	Low	High
Build Alternative A	$119	$228
Build Alternative B	$149	$293
B-CSX Design Option	$193	$358
Build Alternative D	$277	$539

** These estimates were based on a previous implementation schedule that assumed an opening date for the Potomac Yard Metrorail Station in 2016. Construction cost inflation likely would increase the estimated capital costs for a later opening date.*

Existing Metrorail Blue/Yellow Line between Potomac Greens and Potomac Yard

Summary of Permanent Project Effects

Resource	Build Alternatives				
	No Build Alternative	Alternative A	Alternative B	B-CSX Design Option	Alternative D
Transportation					
Additional off-peak Metrorail train required	0	1	1	1	1
Improved pedestrian/bicycle access between Potomac Greens and Potomac Yard	Yes	Yes	Yes	Yes	Yes
Human Environment					
Land acquisitions (acres)	0	1.3	4.0	14.4	10.0
Displacements of businesses or residences	0	0	0	Movie Theater	Movie Theater
Consistent with City of Alexandria Plans	No	No	Yes	No	No
Consistent with Regional Transportation Plans	No	Yes	Yes	Yes	Yes
Consistent with Plans for George Washington Memorial Parkway (GWMP)	Not inconsistent	Not inconsistent	Not inconsistent	Not inconsistent	Not inconsistent
Adverse impacts to viewsheds from GWMP (opening year viewsheds with a reduction in quality)	0	2	3	3	3
Adverse impacts to viewsheds from Potomac Greens (opening year viewsheds with a reduction in quality)	0	2	1	0	2
Adverse impacts to viewsheds from Potomac Yard (opening year viewsheds with a reduction in quality)	0	1	1	0	1
Effects to GWMP historic architectural resources and parkland (acres)	0	• Visual impacts • Removal of trees (for Option 1)	• Transfer of land (0.16 ac.) • Visual impacts • Removal of trees	• Visual impacts	• Transfer of land (1.43 ac.) • Visual impacts • Removal of trees
Effects to archaeological resources (sites)	0	Option 1: 2 Option 2: 0	Option 1: 2 Option 2: 0	0	1
City of Alexandria park impacts (acres)	0	1.16	3.01	3.86	5.38
Greens Scenic Area easement impact (acres)	0	0	1.71	0	0
FTA noise criteria impacts (residences)	0	0	0	0	7
WMATA noise criteria impacts (residences)	7	7	7	7	3
FTA vibration criteria impacts (residences)	0	6	0	0	7
WMATA vibration criteria impacts (residences)	0	1	0	0	0
Natural Environment					
Increase in impervious surface (acres)	0	1.82	2.24	(-0.02)	9.24
U.S. Army Corp of Engineers (USACE) regulated wetlands impacts (acres)	0	0.02	1.22	0	0.52
NPS regulated wetlands impacts (acres)	0	0	1.28	0	0.50
Floodplain impacts (acres)	0	0	1.48	0	0.90
Resource Protection Area impacts (acres)	0	0.41	3.36	1.12	2.07
Natural habitat loss (acres)	0	0.03	2.58	0.18	1.76
Secondary and Cumulative Effects					
Secondary traffic & visual impacts	Yes	Yes	Yes	Yes	Yes
Adverse effects to GWMP historic architectural resources	Yes	Yes	Yes	Yes	Yes
Cumulative traffic, visual & floodplain impacts	None	Yes	Yes	Yes	Yes

Summary of Temporary Construction Effects

Resource	Build Alternatives				
	No Build Alternative	Alternative A	Alternative B	B-CSX Design Option	Alternative D
General impacts to roadways and driveways	No	Yes	Yes	Yes	Yes
Use of GWMP roadway	No	Option 1: Yes Option 2: No	Option 1: Yes Option 2: No	No	Yes
Effects to GWMP historic architectural resources and parkland (acres)	0	Option 1: 0.30 Option 2: 0	Option 1: 0.78 Option 2: 0.55	0	2.40
Effects to archaeological resources (sites)	0	Option 1: 2 Option 2: 0	Option 1: 2 Option 2: 0	0	1
City of Alexandria park impacts (acres)	0	Option 1: 5.49 Option 2: 4.80	Option 1: 5.48 Option 2: 5.48	0.97	5.53
Greens Scenic Area easement impact (acres)	0	Option 1: 0.25 Option 2: 0.13	Option 1: 3.09 Option 2: 3.09	0	0.02
USACE regulated wetlands impacts (acres)	0	Option 1: 0.30 Option 2: 0.01	Option 1: 3.61 Option 2: 3.54	0	0.41
NPS regulated wetlands impacts (acres)	0	Option 1: 0.35 Option 2: 0.01	Option 1: 3.68 Option 2: 3.57	0	0.48
Resource Protection Area impacts (acres)	0	Option 1: 1.75 Option 2: 0.49	Option 1: 5.50 Option 2: 5.27	0.58	2.40

Project Effects for Key Environmental Resource Areas

Key Environmental Resource Areas

An overview of environmental impacts is shown on page 9; temporary construction impacts to environmental resources are listed in the table above. Specific effects to the George Washington Memorial Parkway are also described individually by resource area at the end of the section.

Land Acquisitions and Displacements

The Build Alternatives would require property for station facilities and right-of-way for realigned track, as well as additional temporary construction easements or access permits. No residential displacements would be required for any of the alternatives. B-CSX Design Option and Build Alternative D would result in a displacement of one existing business, the movie theater in the Potomac Yard Shopping Center. Build Alternatives A and B would not result in the displacement of any businesses.

Build Alternatives B and D would require permanent acquisition of 0.16 acre and 1.43 acres, respectively, of the George Washington Memorial Parkway property. Build Alternatives A and B-CSX Design Option would not require permanent acquisitions of the George Washington Memorial Parkway. In addition, Build Alternative B would be a violation of the Greens Scenic Area easement. Build Alternative B could not proceed unless the easement is released by NPS. Construction staging and access areas for Build Alternatives A and D would also be in violation of the Greens Scenic Area easement. B-CSX Design Option would not be in violation of the Greens Scenic Area easement.

Land acquisitions would be conducted in accordance with all applicable laws.

Local Plans and Zoning

The *North Potomac Yard Small Area Plan* and the zoning for Coordinated Development District (CDD) 19 link the level of development to the presence of a Metrorail station at the approximate location of Build Alternative B. Build Alternative A, B-CSX Design Option, and Build Alternative D are inconsistent with City of Alexandria plans. If a Metrorail station is constructed at a location other than Build Alternative B or is not built, the amount of permitted development in North Potomac Yard is reduced by approximately 3.825 million square feet. The selection of Build Alternative A, B-CSX Design Option, or Build Alternative D would require the City to undertake a revised planning and rezoning process for North Potomac Yard.

Visual Resources

The three Build Alternatives and B-CSX Design Option would impact views from the George Washington Memorial Parkway, the Potomac Greens neighborhood, Potomac Greens Park, and Potomac Yard, due to the introduction of new visual elements and removal of vegetation for construction access and staging areas. New visual elements include the stations and pedestrian bridges for all Build Alternatives, B-CSX Design Option, and the elevated track and structures required for Build Alternative D. The new higher-density development permitted in Potomac Yard under the No Build and Build Alternatives will also result in visual impacts, although this will happen whether or not a Metrorail station is constructed at Potomac Yard.

Noise and Vibration

Residences in Potomac Greens were constructed alongside the pre-existing Metrorail alignment; current Metrorail operations exceed WMATA noise criteria at seven residences. Approval for construction of these residences included a reservation for a future Metrorail station (location of Build Alternative A), and the potential construction of a Metrorail station is disclosed in land and ownership documents.

The existing noise conditions would remain under the No Build Alternative, Build Alternative A, Build Alternative B, and B-CSX Design Option. Build Alternative D would reduce noise impacts at four residences, but would result in new noise impacts based on FTA criteria at eight residences due to its elevated track.

Build Alternative B and B-CSX Design Option would not exceed criteria for vibration impacts. However, both Build Alternatives A and D would result in increased vibration impacts based on FTA criteria to residences in Potomac Greens due to Metrorail trains passing over new switches.

Other noise sources are associated with the proposed station. Metrorail door chimes, train conductor announcements, station public address announcements, and brake noise would be audible in the community as a new noise source. These noises are not expected to contribute to any exceedance or noise impact, based on WMATA and FTA criteria. These noise sources would be evaluated more closely during final design when the station features are finalized, and would be mitigated, as appropriate.

Potomac Yard Park, CSXT railroad tracks, and Potomac Greens

Wetlands and Waterways

Wetlands exist in the area to the east and north of Potomac Greens, between the WMATA tracks and George Washington Memorial Parkway, and in the vicinity of Four Mile Run. Build Alternative B would permanently fill 1.22 acres of wetland regulated by the U.S. Army Corps of Engineers (USACE) under the Clean Water Act. Build Alternative D would permanently fill 0.52 acre of USACE regulated wetland and would require a new bridge over Four Mile Run with new bridge piers in the stream. Build Alternative A and B-CSX Design Option would have impacts of less than one-tenth of an acre. Wetlands are also regulated by NPS; specific impacts to wetlands within the parkland of the George Washington Memorial Parkway and the Greens Scenic Area easement are described on page 13.

Construction Access and Staging

Areas designated for construction staging (see areas shaded in orange on Page 4) would be cleared of all trees and other natural vegetation and filled or leveled as necessary to make construction activities possible. After construction, the areas would be replanted and landscaped according to prior uses and wetlands would be restored in coordination with NPS, USACE, and other relevant agencies. A screen of vegetation along George Washington Memorial Parkway would be maintained where possible to minimize the visual impact to users.

Option 1 construction access for Build Alternatives A and B (access from the George Washington Memorial Parkway) would impact two archaeological sites if avoidance measures are not possible. Construction of Build Alternative D would impact one archaeological site.

George Washington Memorial Parkway/ Mount Vernon Memorial Highway

The George Washington Memorial Parkway, including the historic Mount Vernon Memorial Highway, commemorates the first president, preserves the natural setting, and provides a quality entryway for visitors to the nation's capital. The construction of a Metrorail station at Potomac Yard would affect resources of the Parkway:

Cultural Resources

The segment of the George Washington Memorial Parkway within the project study area is listed on the National Register of Historic Places through two separate nominations: the Mount Vernon Memorial Highway and the George Washington Memorial Parkway.

Build Alternative D, and Option 1 construction access for Build Alternatives A and B (access from the Parkway) would impact the George Washington Memorial Parkway. Specifically, construction of temporary access roads to support station construction under the alternatives would require removal of trees and other vegetation that were intended to screen views of uses to the west. B-CSX Design Option, and Option 2 construction access for Build Alternatives A and B (no access from the Parkway) would not require the construction of temporary access roads from the George Washington Memorial Parkway. For Build Alternative B, both construction access options would require use of a portion of parkland for construction staging, regardless of the access route. Viewsheds and the visitor experience along the Parkway would be impacted by the introduction of a new Metrorail station under any of the three Build Alternatives or B-CSX Design Option.

The three Build Alternatives and B-CSX Design Option would impact historic resources by removing vegetation west of the George Washington Memorial Parkway and introducing new non-historic visual elements and views to the west. These new non-historic elements would impact the integrity of the designed historic landscape and degrade the scenic and historic quality and contemplative experience for travelers, important characteristics of the Parkway experience.

Option 1 construction access for Build Alternatives A and B (access from the George Washington Memorial Parkway) would impact two archaeological sites if avoidance measures are not possible. Construction of Build Alternative D would impact one archaeological site if avoidance measures are not possible. B-CSX Design Option, and Option 2 construction access for Build Alternatives A and B (no access from the Parkway) would not impact any archaeological sites.

Visual Resources

Views from the George Washington Memorial Parkway would be impacted by the introduction of the Metrorail station as well as the Potomac Yard redevelopment in all Build Alternatives, especially during winter, due to the loss of vegetative foliage.

- Build Alternatives requiring construction access from the Parkway (Option 1 construction access for Build Alternatives A and B, and Build Alternative D) would create long-term viewshed impacts. Removal of vegetation would create gaps in the vegetated viewsheds, and replacement vegetation would need to develop and mature to match the existing vegetation growth.
- Build Alternatives that do not require construction access from the Parkway (Option 2 construction access for Build Alternatives A and B, and B-CSX Design Option) would have viewshed impacts from station structures and bridges, and removal of vegetation off of the George Washington Memorial Parkway property. Build Alternative B would require clearing of vegetation within the Greens Scenic Area easement.
- Under the No Build Alternative, viewsheds would be degraded as the Potomac Yard area is developed.

Wetlands

Depending on the construction option, up to 1.28 acres of wetlands on NPS parkland or the Greens Scenic Area easement would be impacted. Up to 3.68 acres of additional wetlands would be temporarily impacted during construction.

Build Alternatives B and D would permanently impact 1.28 and 0.50 acre, respectively, of NPS regulated wetlands. Option 1 construction access for Build Alternatives A and B, and Option 2 construction access for Build Alternative B would all lead to additional temporary wetland impacts. Specific wetland mitigation would be determined through discussions with various agencies for unavoidable impacts. All wetlands located on NPS land would be replaced within the Parkway property or on other NPS sites. B-CSX Design Option and Option 2 construction access for Build Alternative A would not result in any permanent or temporary impacts to wetlands on the George Washington Memorial Parkway.

Construction Traffic

Build Alternatives that require construction access from the George Washington Memorial Parkway (Option 1 construction access for Build Alternatives A and B, and Build Alternative D) would have temporary traffic impacts due to construction vehicles. Construction vehicles would impact the driver experience along the Parkway and would require a permit from NPS. The number of construction vehicles accessing the site per day would vary and would be restricted to specific times based on NPS and City of Alexandria construction regulations and permits. Construction vehicles using the Parkway may damage the roadway pavement, which would require repair after construction. B-CSX Design Option and Option 2 construction access for Build Alternatives A and B would not require construction access from the George Washington Memorial Parkway.

Construction traffic would impact park user experience, an important element of the purpose of the park.

Commercial vehicles are prohibited from the George Washington Memorial Parkway, with limited exceptions, under *NPS Management Policies 2006* (9.2.1.2.1) and Federal regulations (36 CFR 5.6). The NPS policies state that “commercial traffic will be prohibited on roads within parks, except for the purpose of serving park visitors and park operations (9.2.1.2.1).” If access to private lands is otherwise not available, the park Superintendent has the discretion to issue permits for commercial vehicles. The

Existing wetland area within Potomac Greens Park; George Washington Memorial Parkway in the background

proposed construction project areas for Build Alternatives A and B are accessible from locations other than the George Washington Memorial Parkway. However, since potential impacts would occur to residential communities at these other locations, construction access from the George Washington Memorial Parkway was also studied as an option in the Draft EIS.

Public Involvement and Next Steps

How Has the Public Been Engaged in the Project?

The public has been engaged through:

- Public meetings and community group meetings;
- Project newsletters and email distribution lists;
- Project website; and
- Interaction with community organizations.

Informational materials at all public meetings, including presentation materials, handouts, and comment sheets, have been available in Spanish as well as English, and a Spanish-speaking staff member has been present at all meetings.

In addition, the Alexandria City Council created the Potomac Yard Metrorail Implementation Work Group to assist in the EIS process by informing City officials and providing a venue for input on the project.

What Are the Roles of Other Agencies?

During project scoping, Federal, state, and local agencies that might have an interest in the project were invited to participate. Agencies have been involved through briefings and additional communication focused on specific areas of expertise within each agency's reviewing purview. Agencies, as well as the public, are invited to comment on the Draft EIS.

Agencies are also involved through concurrent Federal processes, including reviews for consistency with:

- Clean Water Act;
- National Historic Preservation Act;
- U.S. Department of Transportation Act ("Section 4(f)"); and
- Coastal Zone Management Act.

The National Park Service (NPS) is a cooperating agency because of the potential of the project to impact the George Washington Memorial Parkway. Any action taken by NPS must be consistent with the National Park Service Organic Act, which established NPS and governs its activities.

Public Comment Period

The public has the opportunity to comment on the environmental analysis. Comments received during this period can help to identify changes to alternatives that may mitigate adverse effects. Any changes will be incorporated into the Final EIS. See www.potomacyardmetro.com for the full copy of the Draft EIS and supporting background materials from the study.

Hard copies of the Draft EIS are available for review at the City of Alexandria public library and at:

Alexandria City Hall
301 King Street
Alexandria, VA 22314

The public comment period on the Draft EIS will be open until May 18, 2015.

See following page for information on opportunities to provide comments at the public hearing, by email, or by mail.

Project public meeting, April 2012

City of Alexandria Outreach

The City of Alexandria will be hosting two public workshops, in which individuals can learn more about the EIS process and get more information about specific subject areas. A separate public hearing will be held by the City of Alexandria as part of its legislative process.

For more information on the final dates of City meetings and hearings related to the project, please visit the City's website:

Alexandriava.gov/PotomacYard/

or you may call the City's general information line:

703-746-4357

Public Hearing

A public hearing on the Draft EIS will be held as part of the NEPA process at the following time and location:

Thursday, April 30, 2015 at 6:30pm

Cora Kelly Recreation Center
25 W. Reed Avenue
Alexandria, VA 22305

The location of the hearing is wheelchair accessible. Any individual who requires special assistance such as a sign language interpreter or additional accommodation to participate in the public hearing, or who requires these materials in an alternate format, should contact Danise Peña at 202-962-2511 or TTY: 202-962-2033 as soon as possible in order for WMATA to make necessary arrangements. For language assistance, such as an interpreter or information in another language, please call 202-962-2582 at least 48 hours prior to the hearing.

What Happens after the Public Hearing?

Following the public hearing, the City of Alexandria will choose a preferred alternative. The City will continue coordination with FTA and NPS before selection of a preferred alternative to ensure compliance with NEPA and other applicable laws.

After identification of the preferred alternative, a Final EIS will be prepared. The Final EIS will state how public comments are addressed, include further design and refinement of the project to minimize community and environmental impacts, identify impacts of the preferred alternative, and describe measures for avoiding, minimizing, or mitigating adverse impacts.

Comment on the Draft EIS

Submit written comments by May 18, 2015:

- By email: comments@potomacyardmetro.com
  or
  writtentestimony@wmata.com
- By mail: **Potomac Yard Metrorail Station EIS**
  P.O. Box 16531
  Alexandria, VA 22302
  or
  Office of the Secretary
  WMATA
  600 Fifth Street Northwest
  Washington, DC 20001

Appendix B:
Letter from the National Park Service re: Net Benefits Agreement Framework

United States Department of the Interior

NATIONAL PARK SERVICE
National Capital Region
1100 Ohio Drive, S.W.
Washington, D.C. 20242

IN REPLY
REFER TO:

1.A1. (NCR-GWMP)

April 20, 2015

Mr. Mark Jinks
City Manager, City of Alexandria
301 King Street
Alexandria, Virginia 22314

Dear Mr. Jinks:

I am writing to follow up on the November 14, 2014 letter from the National Park Service (NPS) to City Manager, Rashad Young regarding the Environmental Impact Statement (EIS) for the proposed Potomac Yard Metro Station. In that letter, the NPS stated its belief that Build Alternatives A or B could be viable from its perspective, but that the NPS and the City of Alexandria would need to agree on a package of mitigations that would ensure a net benefit to the George Washington Memorial Parkway (GWMP) should Alternative B be selected.

The NPS understands that, with the release of the Draft EIS, your staff is likely to recommend Alternative B as the "locally preferred alternative" for approval by the Alexandria City Council at an upcoming meeting. Over the last several months the NPS and the City of Alexandria staff have had productive discussions regarding potential measures for mitigating impacts and the loss of parkland within the GWMP. We believe that the City's current proposal appears to mitigate those impacts sufficiently so that NPS would not object to the identification of Alternative B as the locally preferred alternative.

The City's proposal would offset the loss of approximately 7,000 square feet of GWMP parkland by providing the United States with full fee ownership of most of a parcel of City parkland on which it currently holds a scenic easement, and by placing limitations on building heights adjacent to the GWMP, building lighting, and building signage, through easements and/or City regulations. In addition, the City proposes to allocate approximately $12 million to mitigate impacts to park resources through the following measures:

- Stormwater management planning and implementation of stormwater-related improvements to Daingerfield Island and the adjacent section of the GWMP;
- Development of and at least partial funding for the implementation of a Master Plan for improvements to Daingerfield Island;
- Repairs and improvements to the Mount Vernon Trail in the vicinity of the project area; and
- Plans and studies that will address the acute planning needs for the south section of the GWMP (Four Mile Run to Mount Vernon), covering such topics as vegetation and landscape, cultural resources and archeology, viewshed protection, visitor use, resource stewardship, and facility management.

The NPS believes that the full implementation of the package described above would sufficiently mitigate the loss of park and easement land and the impacts to park resources, and NPS accordingly does not

object to the identification of Alternative B as the locally preferred alternative in the EIS. NPS notes that significant work remains to complete this National Environmental Policy Act process, as well as compliance with the National Historic Preservation Act and Section 4(f), and that some aspects of the project are still under discussion. Those processes and issues will need to be completed and resolved before NPS would provide any needed final approval for Alternative B or whatever alternative is ultimately selected.

Thank you for your continued cooperation on this process and your work with the NPS to preserve parkland and resources. If you have any questions or need further information, please contact me or Peter May, Associate Regional Director for Lands, Planning and Design at (202) 619-7025.

Sincerely,

Robert A. Vogel
Regional Director

Appendix C:
Feedback on Impacts of Alternatives

Appendix C:
Feedback on Impacts of Alternatives

The evaluation of the costs and benefits of each of the alternatives considered in the Draft EIS included a consideration of comments from the public, including both benefits and issues related to each alternative. This feedback was received by email, through public testimony, and heard at boards, commissions, and community meetings. Staff has summarized the feedback from the public for the No Build Alternative, Alternative A, Alternative B, Alternative D, and Design Option B-CSX.

NO BUILD ALTERNATIVE

The following reasons are typically being heard from residents in support of the No Build Alternative:

- Project Purpose and Need: Residents who support the No Build Alternative typically do so because they believe the existing and future transportation network (including the Crystal City/Potomac Yard Transitway) is sufficient to support the mobility needs of the Potomac Yard area. Some residents who support the No Build Alternative would also like to see a lower level of development in North Potomac Yard, and therefore believe a Metrorail station is unneccesary.
- The George Washington Memorial Parkway (GWMP): A number of residents are concerned about impacts to the GWMP, particularly that a visible Metrorail station will degrade the quality of this resource. A No Build Alternative would not have any permanent or temporary impacts to the GWMP.
- Financial Feasibility: Some residents have expressed support for the No Build Alternative as they are worried the City would jeopardize its bond rating and need to use monies from the General Fund if the development of Potomac Yard does not proceed as projected.
- Wetlands: Some residents support the No Build Alternative because this alternative would not result in impacts to the wetlands north of Potomac Greens.

The following concerns are typically being heard from residents regarding the No Build Alternative:

- Lack of regional transit accessibility: Residents have expressed concern that without the addition of a Metrorail station at Potomac Yard, fewer trips would be taken via transit, resulting in additional capacity pressures on area roadways.
- Development impact: Residents have expressed concern that Potomac Yard would see a less diverse mix of uses without a Metrorail station, including significantly less office development.

- Competitiveness: Residents have expressed concern that the lack of a Metrorail station at Potomac Yard would affect the area's attractiveness for new residents and businesses.

ALTERNATIVE A

The following reasons are typically being heard from residents in support of Alternative A:

- Financial Feasibility: Some residents have expressed support for Alternative A as the most fiscally sensible Build Alternative to construct. Alternative A has the lowest construction costs of all Build Alternatives.

- Proximity to Del Ray Community: Some residents of the Del Ray neighborhood are in support of Alternative A as this station location would have access points nearest to the greatest number of residents and businesses in their neighborhood.

The concerns described below are typically being heard from residents regarding Alternative A. It should be noted that residents of Potomac Greens have expressed many concerns about the impacts of this alternative, given its location at the northern end of the neighborhood.

- Construction: Construction access for Alternative A could come through Old Town Greens and Potomac Greens. Some residents have expressed concern about traffic from construction trucks using neighborhood streets, particularly when there are children playing. Noise, vibration, and dust from construction activities could be disruptive to residents.

- Parking and Traffic: The station is designed as an urban station, with the majority of riders expected to arrive on foot or bicycle. Bus riders would access the station from Potomac Avenue. Some residents have expressed concern about traffic from cars using neighborhood streets to access the Metrorail station. Because the station will not include any park-and-ride lots, residents have also expressed concern that Metrorail riders will park on neighborhood streets.

- Parks: Access points to the Metrorail station would be located in Potomac Greens Park and Potomac Yard Park, with the southern bridge for Alternative A landing at the widest point of Potomac Yard Park and displacing uses there. Some residents are concerned that these access points would negatively affect their use and enjoyment of the parks.

- Crime: Some residents of Potomac Greens and Old Town Greens have noted that their neighborhoods are relatively isolated, with only one access point to Slaters Lane. They have expressed concern that adding an access point to Metrorail would increase the opportunity for crime in their neighborhood.

- Financial Feasibility: Some residents have expressed concern that the station would need to be paid for using monies from the General Fund if the development of Potomac Yard does not proceed as projected.

- Noise and Vibration: Given the location of the station behind a number of homes in Potomac Greens, some residents have expressed concern that noise from the station will negatively affect their quality of life, and that there could be vibration impacts to their homes.

- Visual Impact: Some residents whose homes are located approximately 50 feet from the platform for Alternative A are concerned about the visual impact of the station from their windows and balconies.

- Property Values: Some residents of Potomac Greens worry that the combined negative effects of Alternative A would result in lower property values within the neighborhood.

ALTERNATIVE B

The following reasons are typically being heard from residents in support of Alternative B:

- Development Impact: Alternative B receives support from residents who want the maximum potential development of North Potomac Yard and, therefore, maximum economic benefit to the City.
- Economic Competiveness: Some residents have expressed support for Alternative B as this location would allow for maximum potential development of North Potomac Yard and provide a vibrant destination that will attract a young, educated and talented workforce.
- Smart Growth: Alternative B receives support from residents who see it as the alternative that will do the most to foster the redevelopment of Potomac Yard as a walkable, transit-oriented hub for the City and the region. These residents note that Alternative B will maximize the transportation, economic, and environmental benefits of the project.

- Property Values: A number of Potomac Greens residents have expressed support for Alternative B as this location would not have the combined negative effects of Alternative A that would result in lower property values within the neighborhood.

The concerns described below are typically being heard from residents regarding Alternative B.

- Construction: Significant construction access for Alternative B could come through Old Town Greens and Potomac Greens. Some residents have expressed concern about traffic from construction trucks using neighborhood streets, particularly where there are children playing. Noise, vibration, and dust from construction activities could be disruptive to residents, particularly when construction takes place at night and on weekends.

- Parking and Traffic: The station is designed as an urban station, with the majority of riders expected to arrive on foot or bicycle. Bus riders would access the station from Potomac Avenue. Some residents have expressed concern about traffic from cars using neighborhood streets to access the Metrorail station. Because the station will not include any park-and-ride lots, residents have also expressed concern that Metrorail riders will park on neighborhood streets.

- The George Washington Memorial Parkway (GWMP): Alternative B would be located partially on land currently occupied by a scenic easement administered by NPS, and would require approximately 7,000 square feet of GWMP property. The GWMP is an important resource commemorating the nation's first president, which was designed to provide a quality entryway for visitor's to the nation's capital. Some residents are concerned about impacts to the GWMP, particularly that a visible Metrorail station will degrade the quality of this resource.

- Parks: Access points to the Metrorail station would be located in Potomac Greens Park and Potomac Yard Park, near existing multi-use trails. Some residents are concerned that these access points would negatively affect their use and enjoyment of the parks.

- Wetlands: Alternative B would impact wetlands to the north of Potomac Greens. Some residents have expressed concern over both the permanent impacts and the temporary impacts due to the staging area for construction as currently designed.

- Crime: Some residents of Potomac Greens and Old Town Greens have noted that their neighborhoods are relatively isolated, with only one access point to Slaters Lane. They have expressed concern that adding an access point to Metrorail would increase the opportunity for crime in their neighborhood.

- Financial Feasibility: Some residents have expressed concern that the station would need to be paid for using monies from the General Fund if the development of Potomac Yard does not proceed as expected.

B-CSX DESIGN OPTION

The following reasons are typically being heard from residents in support of B-CSX Design Option:

- The George Washington Memorial Parkway (GWMP): A number of residents are concerned about impacts to the GWMP as a result of construction access and staging. B-CSX Design Option would not have any permanent or temporary impacts to the GWMP.

- Wetlands: Some residents support the B-CSX Design Option because this design option would not result in permanent impacts and the temporary impacts due to the staging area for construction as currently designed for Alternative A, Alternative B, and Alternative D.

The concerns described below are typically being heard from residents regarding the B-CSX Design Option.

- Construction Cost and Timing: At a minimum, the B-CSX Design Option would add three years to the construction schedule and would cost approximately $83 million more than Alternative B. Some residents have expressed concern that the B-CSX Design Option could take many more years to construct than any of the other alternatives. This is not only due to the additional time required to move the CSXT right-of-way, but also because this option does not have the support of CSXT. Residents have also noted that coordination with CSXT could add many years to the project, even if they do eventually agree. Residents have also expressed concern related to the additional cost of the B-CSX Design Option compared to Alternatives A and B.

- Development Impact: The B-CSX Design Option would require the use of otherwise developable land. Some residents have expressed concern that the B-CSX Design Option will affect the full realization of the potential development in North Potomac Yard.

- Station Access: B-CSX Design Option is located at the northern end of Potomac Yard. Some residents have expressed concern that it is located too far from existing development at the southern end of Potomac Yard and west of Route 1, and therefore would not provide a benefit to those neighborhoods.

- Pedestrian/Bicycle Access: B-CSX Design Option would not include a pedestrian/bicycle bridge between Potomac Yard and Potomac Greens as part of the project (the bridge would be constructed separately). Some residents have expressed a preference for alternatives that integrate the pedestrian/bicycle bridge into the station (as in Alternatives A and B).

- Financial Feasibility: Some residents have expressed concern that the station would need to be paid for using monies from the General Fund if the development of Potomac Yard does not proceed as expected.

ALTERNATIVE D

The following reasons are typically being heard from residents in support of Alternative D:

- Station Access: Some residents of Lynhaven have expressed support for Alternative D as the station location would be located closer to their neighborhood.
- Property Values: Some residents of Potomac Greens have expressed support for Alternative D as this location would not have the combined negative effects of Alternative A or Alternative B that would result in lower property values within the neighborhood.

The concerns described below are typically being heard from residents regarding the Alternative D.

- Construction Cost: Some residents are concerned that the high construction cost for Alternative D is not financially feasible.

- Visual Impact: Alternative D would require the construction of aerial track over the existing Metrorail and CSXT tracks, as well as a new bridge over Four Mile Run. Some residents are concerned that the aerial structures and platform of Alternative D would be out of character for the City and would negatively affect views from the George Washington Memorial Parkway. The aerial guideway would also negatively affect views from the windows of houses in Potomac Greens.

- Noise and Vibration: The aerial tracks for Alternative D rejoin the existing Metrorail tracks behind the homes in Potomac Greens. Some residents have expressed concern that they could be negatively affected by noise and vibration from trains passing over these aerial tracks.

- Parks: The aerial structures for alternative would occupy portions of Potomac Yard Park, requiring the relocation of existing park uses. Some residents are concerned that this would negatively affect their use and enjoyment of the park.

- Development Impact: Alternative D would require the use of otherwise developable land. Some residents have expressed concern that this would affect the full realization of the potential development in North Potomac Yard.

- Station Access: Alternative D would be located at the northern end of Potomac Yard. Residents have expressed concern that it would be located too far from existing development at the southern end of Potomac Yard and west of Route 1, and therefore would not provide a benefit to those neighborhoods.

- Pedestrian/Bicycle Access: Alternative D would not include a pedestrian/bicycle bridge between Potomac Yard and Potomac Greens as part of the project (the bridge would be constructed separately). Some residents have expressed a preference for alternatives that integrate the pedestrian/bicycle bridge into the station (as in Alternatives A and B).

POTOMAC YARD METRORAIL STATION
ENVIRONMENTAL IMPACT STATEMENT

Updates to Analyses of Environmental Consequences Technical Memorandum

June 2016

Federal Transit Administration

CITY OF ALEXANDRIA VIRGINIA

metro

NATIONAL PARK SERVICE

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Purpose and Organization of the Updates Memorandum

This memorandum summarizes updated technical analyses of the project's affected environment and environmental consequences that have occurred since the initial preparation of the Volume II Technical Memoranda.

These updates reflect:

- *Information currently presented in the Final EIS for the Preferred Alternative (Build Alternative B) or No Build Alternative;*
- *Information presented in the April 2015 Draft EIS regarding Build Alternatives A, B, D, and B-CSX Design Option; or*
- *Information presented in other recent project reports as noted in the sections below.*

Updates are organized by technical memorandum, based on their numbering in Volume II of the Final EIS. The updated information is indicated with yellow highlight of excerpted text from the memoranda. Updated map figures are provided for revisions that have been made to memoranda figures.

4. TRANSPORTATION TECHNICAL MEMORANDUM

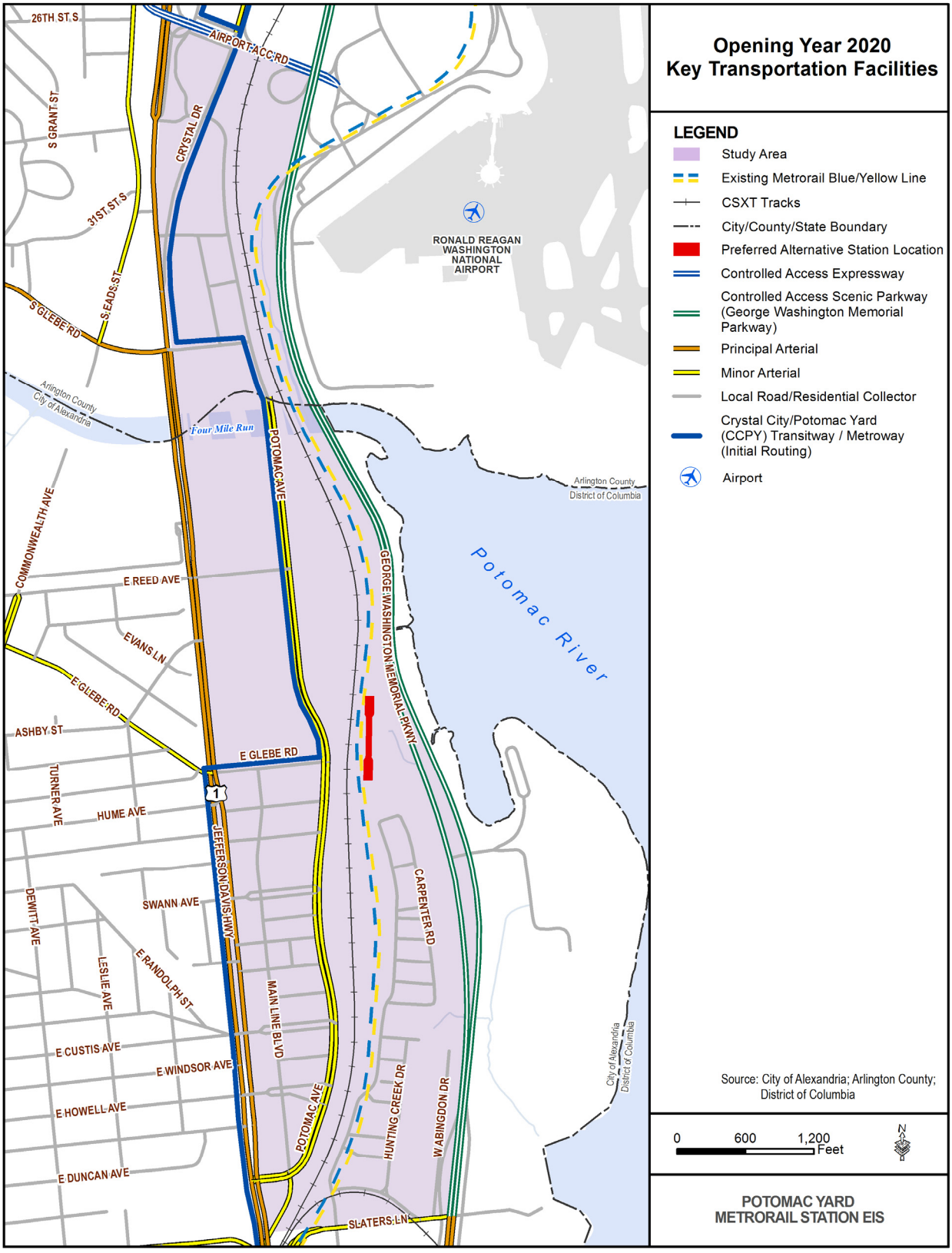
Page 1, 1.0 Introduction, 3rd Paragraph

Transportation elements analyzed at both the opening year (2020) and horizon year (2040) in this memorandum include roadways, traffic conditions, rail operations, rail ridership projections, surface transit network, bicycle and pedestrian facilities, and parking and access facilities. **Figure 1-1** shows the major transportation facilities in the project study area including the street system, Metrorail Blue and Yellow Lines, the Crystal City/Potomac Yard (CCPY) Transitway (which opened in 2014), and the CSX Transportation (CSXT) rail corridor, which accommodates freight, intercity passenger rail, and commuter rail services.

Page 2, 1.1.2 Build Alternatives, Figure 1-1

(see following page)

Figure 1-1: Key Transportation Facilities



Page 5, Section 1.2.3 WMATA Plans, Crystal City/Potomac Yard Transitway Operations Plan (January 2012)

Crystal City/Potomac Yard Transitway Operations Plan (January 2012)

This plan establishes detailed transit service operations, transitway access policies, and implementation plans to prepare for the opening of the transitway and premium Metrobus service. The transitway will be constructed in phases, the initial phase opened for service in August 2014.

Page 6, Section 1.3 Methodology

Methodology

The potential effects of the No Build and Build Alternatives were analyzed in relation to rail operations, rail ridership projections, the roadway network, traffic conditions, the surface transit network, bicycle and pedestrian facilities, and parking and access facilities for the opening year (2020) and horizon year (2040). Potential indirect regional impacts of the alternatives are discussed in the Secondary and Cumulative Impacts Technical Memorandum.

Page 6, Section 1.3.2 Traffic Conditions, 1st Paragraph

1.3.2 Traffic Conditions

The anticipated traffic effects of the No Build Alternative and the three Build Alternatives in the opening year and horizon year were evaluated by assessing the performance of 20 key intersections in the study area. For the existing conditions and future No Build and Build conditions in 2016 and 2040, the intersections were modeled using VISSIM, a microsimulation model. Future traffic growth was estimated for the No Build Alternative, and additional traffic due to the proposed Potomac Yard Metrorail Station was estimated for the Build Alternatives and incorporated into the intersection simulations. To update the traffic results for the revised opening year of 2020, the qualitative results were interpolated between the 2016 and 2040 modeling results. As no impacts to overall study intersection Level of Service (LOS) by the Preferred Alternative were found in either 2016 or 2040, the analysis assumed that the 2020 opening year would similarly have no impacts.

Page 7, Section 1.3.2 Traffic Conditions, Future Conditions

Future Conditions

To simulate the future growth in traffic volumes and calculate the LOS of study area intersections in the current opening year (2020) and horizon year (2040), the project forecasted future growth in traffic volumes. Initial forecasts were conducted for 2016 and 2040. Potential increases in study area traffic volume from existing conditions are attributed to the following reasons:

Regional traffic growth; and

Trips generated by approved developments in Potomac Yard that are expected to be built by the future horizon years.

Both background regional traffic growth (i.e., traffic that would occur regardless of increased development) and proposed, new development are inputs to calculate the total traffic volume and represent the future No Build Condition in 2016 (and assumed for 2020) and 2040. New lane and intersection configurations for the CCPY Transitway, both initial alignment and long-term alignment through the North Potomac Yard mixed-use development, were incorporated into the traffic modeling for 2016 and 2040.

Page 8, Section 1.3.2 Traffic Conditions, Additional Trip Generation: Future Potomac Yard Land Use

Additional Trip Generation: Future Potomac Yard Land Use

To determine additional trip generation, the analysis made assumptions about the volume and type of future land use present in Potomac Yard by 2020 and 2040 (see **Appendix B**). Updated City of Alexandria staff

projections for development in Potomac Yard estimated the same approximate level of development to be built in Potomac Yard in 2020 as had previously been assumed for the 2016 when the initial trip generation forecasts were conducted for the earlier anticipated opening year. This was due to the actual pace of development in South Potomac Yard occurring more slowly compared to earlier City assumptions at the time of the initial traffic analysis conducted in 2012. Vehicular trips generated by the future development in Potomac Yard were estimated using the same assumptions and methodology as the *Potomac Yard Multimodal Transportation Study*.

Opening Year (2020)

The following volumes of additional development above existing conditions were assumed to occur in Potomac Yard by 2020:

North Potomac Yard – No development in addition to the existing 600,000 square-foot retail center is planned to occur in North Potomac Yard by 2020.

Page 9, Section 1.3.2 Traffic Conditions, Reductions in Vehicular Trips

Reductions in Vehicular Trips

Consistent with the *Potomac Yard Multimodal Transportation Study*, the proposed Metrorail station and planned mixed-use developments in its vicinity are assumed to increase the transit mode share of trips within the study area by approximately 7 percent in 2020 and by approximately 24 percent in 2040.

Page 9, Section 1.3.2 Traffic Conditions, Intersection Simulations

Intersection Simulations

Traffic conditions at the study intersections were modeled based on the existing traffic data, additional estimated traffic growth, and distribution of trips assumed. To accurately reflect existing traffic conditions, the simulation model was calibrated using travel times and observed queues along U.S. Route 1 and Slaters Lane. Bus transit routes serving the area, including the planned Crystal City/Potomac Yard Transitway, were included in the models for both the 2016 and 2040 conditions; bus transit routes in 2020 are anticipated to be the same as those previously assumed for 2016. Using the simulations, average vehicle delay for the study intersections was measured and LOS determined.

Page 11, Section 1.3.3 Rail Operations, End-to-End Travel Distances and Times

End-to-End Travel Distances and Times

The run time model was used to simulate travel times for the three Build Alternatives. Dwell time at the new Potomac Yard Metrorail Station was assumed to be 30 seconds in all cases, consistent with current Metrorail assumptions and actual observations at other stations. Running times were adjusted to conform to the alternatives' track topology and vehicle acceleration/deceleration characteristics coming into and out of the new station. Additional travel time to access the Potomac Yard Metrorail Station was added to the planned Blue and Yellow Line patterns in 2020 and 2040. Each alternative assumed to add one minute to the end-to-end travel time, and two minutes to the end-to-end round trip (or loop) time.

Page 12, Section 1.3.4 Rail Ridership Projections, 2nd Paragraph

For areas outside of the City of Alexandria portion of Potomac Yard, the land use was based on the regionally adopted land use forecasts (MWCOG's Round 8.0 Cooperative Land Use projections for 2016 and 2040), and, for the City of Alexandria portion of Potomac Yard, the land use was based on approved development volumes (see **Appendix B**). The model included a pedestrian and environmental variable to account for the relationship between walkability and transit utilization. To update the opening year ridership forecast for 2020, the analysis

applied growth factors from the TPB regional travel demand model version 2.3.57a (2015) between 2020 and 2015 to the WMATA LineLoad process based on 30-minute mezzanine counts from May 2015.

Based on City of Alexandria development plans and resulting demographic forecasts (staff analysis, January 2015), Build Alternative B is projected to have significantly higher population and employment within the immediate station area compared to the other Build Alternatives (approximately 24,600 residents and employees within a ¼-mile radius of the Build Alternative B station entrances compared to 19,200 to 20,200 for Build Alternatives A and D, respectively). The regional travel demand model uses Transportation Analysis Zones (TAZ) to account for land use. As there are two TAZs for all of the Alexandria portion of Potomac Yard, these TAZ are not fine-grained enough to account for differences in projected population and employment in the vicinity of the different Build Alternative station locations. To account for the differences in proximity of the Build Alternatives to the densest areas of the Potomac Yard development (and resulting differences in population and employment within the station area), the modeled location of Build Alternative B was adjusted relative to the center of the TAZ in terms of walk time. This adjustment resulted was done to approximate the 25 percent higher population and employment within Build Alternative B's five-minute walking area compared to the other Build Alternatives.

Page 12, Section 1.3.5 Surface Transit Network, 2nd Paragraph

The existing bus transit network was assessed as it relates to both opening year and horizon year conditions. The existing network, which forms the No Build Alternative, included projects financially committed to open by 2020, such as the CCPY Transitway.

Page 14, Section 2.1 Opening Year Conditions, 1st and 2nd Paragraphs

Figure 1-1 shows the opening year roadway network. By 2020, the South Potomac Yard roadway network will be completed, and North Potomac Yard will still have the internal driveway configuration of the existing strip shopping center.

The other change to the 2020 study area roadway network from existing conditions will be the full CCPY Transitway, which will be constructed in phases. The transitway will have a dedicated right-of-way along some sections of the corridor to separate buses from traffic congestion. Along U.S. Route 1, buses will run in dedicated lanes between Potomac Avenue and East Glebe Road. North of East Glebe Road, buses will leave U.S. Route 1 and run through the existing shopping center and then into Arlington County via Potomac Avenue in general traffic lanes.

Page 14, Section 2.2.1 No Build Alternative

2.2.1 No Build Alternative

The roadway network in 2040 would be the same as the 2020 transportation network, with the addition of the urban public street grid within the redeveloped North Potomac Yard and the extension of the CCPY Transitway dedicated lanes several blocks further north along U.S. Route 1. The CCPY Transitway turn into North Potomac Yard from U.S. Route 1 would shift from the East Glebe Road intersection to the new Diamond Road intersection where it would enter the North Potomac Yard development, which would change intersection signal phases and cycle times at several U.S. Route 1 intersections.

Page 15, Section 3.2 Opening Year Conditions, 1st Paragraph

Opening year traffic conditions are expected to be largely similar to existing conditions. Simulation results showed that generally most intersections are estimated to experience slight increases in average vehicular delay due to regional traffic growth between 2012 and 2016. This increase resulted in changes in LOS at a few intersections from the existing condition. During the AM peak hour, only the intersections of South Glebe Road

at U.S. Route 1 and George Washington Memorial Parkway at Slaters Lane are projected to operate with LOS D; all other intersections are projected to operate with LOS C or better. During the PM peak hour, the delay at the intersection of South Glebe Road at U.S. Route 1 is projected to increase by approximately ten seconds; however, the intersection will still perform at LOS D as in the existing 2012 condition. Detailed tables and figures of intersection LOS for 2016 are included in **Appendix C**. The findings of overall intersection LOS are anticipated to be the same for the year 2020 based on the same level of development in Potomac Yard and the similar overall results (no impact) found for the year 2040 (see below).

Page 15, Section 3.3 Potential Effects, 2nd Paragraph

Table 3-1 and **Table 3-2** summarize traffic simulation results for intersection LOS in the AM and PM peak hours, respectively, for the No Build and Build conditions in both 2016 and 2040. Particularly for this analysis, a traffic effect can be either positive or negative, depending on whether the projected Build LOS improves or decreases, compared to the No Build. Any projected change in overall intersection LOS, even if not a substantial enough to constitute a traffic effect, is highlighted in yellow in Tables 3-1 and 3-2. None of the projected changes is substantial (i.e., a change greater than one grade level LOS or a change to LOS E or F from LOS D or above) and none would be considered a traffic effect of the project. There would be no discernible differences in the traffic performance of the Build Alternatives due to the low number of new automobile trips within the study area as a result of a new station, the relatively close proximity of the different station locations under the Build Alternatives. Detailed LOS and delay data by intersection approach are provided in **Appendix C**. The findings of overall intersection LOS are anticipated to be the same for the year 2020 based on the same level of development in Potomac Yard and the similar overall results (no impact) found for the year 2040.

Page 18, Section 3.3.1 Opening Year 2016 Effects

3.3.1 Opening Year 2020 Effects

No Build Alternative

The No Build traffic conditions are the same as the Opening Year traffic conditions.

Build Alternatives

The simulation results showed that during the 2016 AM and PM peak hours, most intersections would maintain the same overall LOS in the Build condition as in the No Build condition. The Build Alternatives had no substantial effects on overall intersection performance.

The overall intersection LOS for the intersection of East Glebe Road and U.S. Route 1 would remain LOS C in the 2016 Build condition as in the No Build condition; however, the eastbound approach would experience substantial additional delay in the 2016 Build condition. Eastbound East Glebe Road has only one travel lane and has a short left-turn lane at the intersection with U.S. Route 1. For the eastbound approach in the AM peak hour, the LOS is projected to downgrade from LOS D in the No Build condition to LOS F in the Build Condition; in the PM peak hour, the LOS is projected to downgrade from LOS D in the No Build condition to LOS E in the Build condition. The future traffic growth from the developments in the area and the new Potomac Yard Metrorail Station are projected to exceed the capacity of eastbound East Glebe Road. The findings of overall intersection LOS are anticipated to be the same for the year 2020 based on the same level of development in Potomac Yard and the similar overall results (no impact) found for the year 2040.

Page 19, Section 4.1.1 Metrorail Services, 2nd Paragraph

Prior to the Potomac Yard Metrorail Station opening year of 2020, the Metrorail Silver Line opened to Wiehle Avenue as part of Dulles Corridor Metrorail Project. To create system capacity for the opening of the Silver Line, the following operational changes, called “Rush+,” were implemented by WMATA in June 2012:

Page 19, Section 4.1.1 Metrorail Services, Table 4-1 Metrorail Headways for 2016

Table 4-1: Metrorail Headways for 2020

From	To	Peak Headway (minutes)	Off-Peak Headway (minutes)
Yellow Line			
Huntington	Fort Totten	-	12
Franconia-Springfield	Greenbelt	14	-
Huntington	Mount Vernon Square	7	-
Blue Line			
Franconia-Springfield	Largo Town Center	14	12

Source: WMATA Operating Plan, 2012.

Page 20, Section 4.2.2 Build Alternatives, Metrorail Services and Table 4-2 2016 Metrorail Operating Plan and Summary Statistics

Metrorail Services

Table 4-2 lists the operating statistics for the No Build and Build Alternatives for the 2020 Opening year, including Metrorail service patterns, headways, travel distances, and travel times. The Build Alternatives would not require any additional peak-period trains or cars above the No Build Alternative. In the off-peak, the Build Alternatives would require one additional train in service to accommodate the increased cycle time needed on the Yellow Line from Huntington to Fort Totten. The slight changes to run time and distance for each Build Alternative compared to the No Build Alternative would lead to very minimal increases in revenue miles and hours.

Table 4-2: 2020 Metrorail Operating Plan Summary Statistics

Alternative	Weekday Trains		Weekday Train Cars		Total Annual		
	Peak	Base	Peak	Total	Train Car-Miles	Train-Hours	Train Car-Hours
No Build	111	60	900	1,118	90,971,696	599,796	3,652,832
Build A	111	61	900	1,118	90,971,696	604,442	3,680,165
Build B	111	61	900	1,118	90,969,495	604,442	3,680,165
Build D	111	61	900	1,118	90,973,897	604,442	3,680,165
Difference from No Build							
Build A	0	1	0	0	0	4,646	27,333
Build B	0	1	0	0	(2,201)	4,646	27,333
Build D	0	1	0	0	2,201	4,646	27,333

Table 4-3 lists the operating statistics for the Build Alternatives for the 2040 horizon year, including Metrorail service patterns, headways, travel distances, and travel times. Similar to the 2020 Opening Year operating statistics, the Build Alternatives would not require any additional peak-period trains or cars above the No Build Alternative. In the off-peak, the Build Alternatives would require one additional train in service to accommodate the increased cycle time needed on the Yellow Line from Huntington to Fort Totten. The slight changes to run time and distance for each Build Alternative compared to the No Build Alternative would lead to very minimal increases in revenue miles and hours.

Page 22, Section 4.2.2 Build Alternatives, Metrorail Services, End –to-End Travel Distances and Times

End-to-End Travel Distances and Times

In both opening year 2020 and horizon year 2040, three Metrorail Yellow Line patterns and one Blue Line pattern are currently planned to operate within the segment between National Airport and Braddock Road Stations. End-to-end travel distances and times for these patterns were calculated for each alternative. **Table 4-6** presents the resulting change in distance to round trips for each Metrorail pattern.

Page 24, Section 5.0 Rail Ridership Projection, 2nd Paragraph and Table 5-1 Weekday Metrorail Ridership for Build Alternatives (2016)

Table 5-1 lists the opening year (2020) ridership for the Build Alternatives, which for all Build Alternatives is approximately 5,000 average weekday boardings.

Table 0-1: Weekday Metrorail Ridership for Build Alternatives (2020)

Source of Riders	Alternative B (# boardings)
Diversions from Automobile Mode (vs. No Build)	1,550
Diversions from Bus Mode (vs. No Build)	1,431
Diversions from Existing Metrorail Stations (vs. No Build)	
Braddock Road Station	*1,206*
Ronald Reagan Washington National Airport Station	*308*
Crystal City Station	*1,467*
Metrorail Subtotal	2,981
Total Weekday Potomac Yard Metrorail Station Boardings	**4,973**

Table 5-2 shows estimated ridership for the Build Alternatives in 2040, which for all Build Alternatives is approximately 11,300 average weekday boardings. The increase in new Metrorail riders at the station from 2020 is a result of the higher population and employment in the station area due to the new development in Potomac Yard.

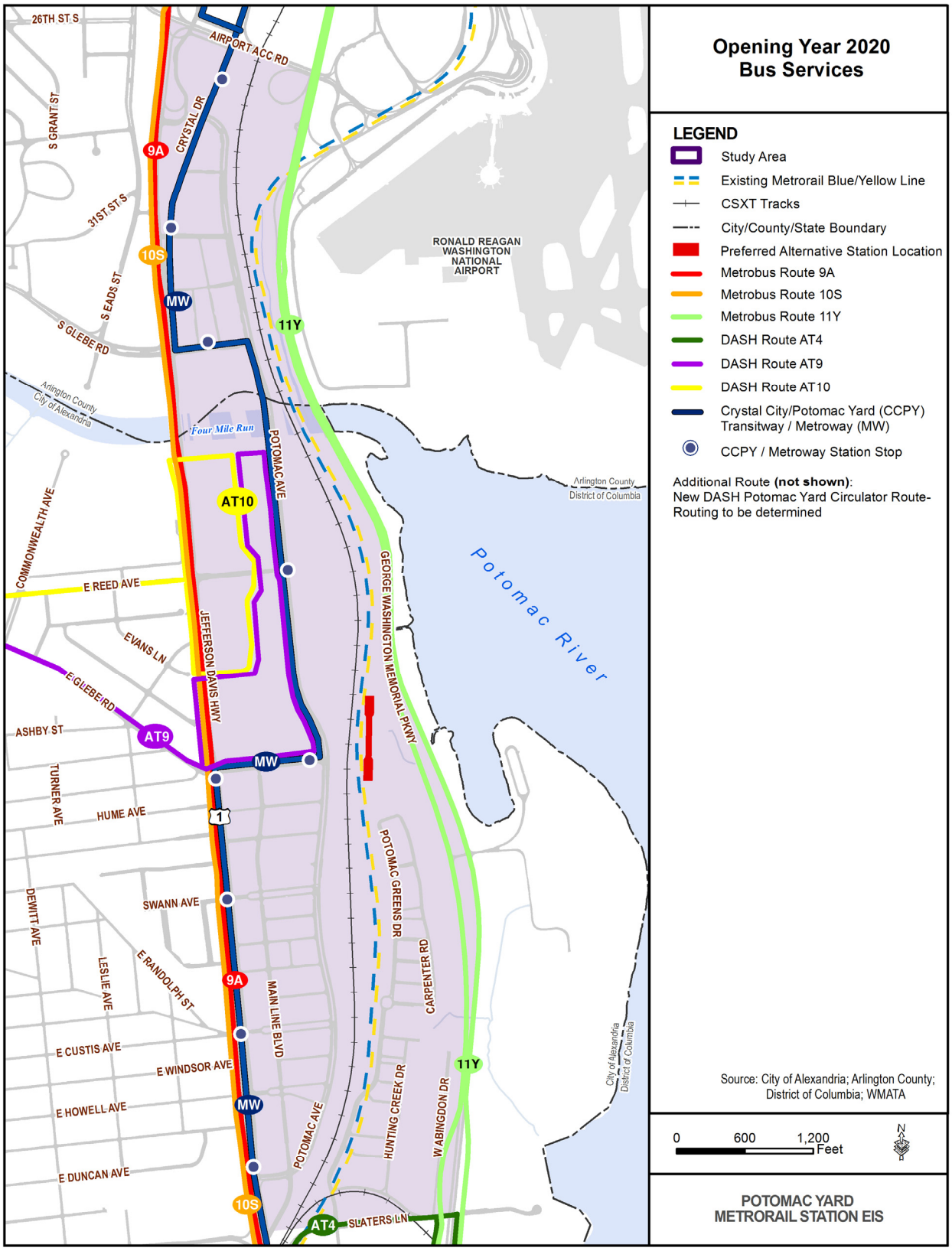
Table 5-2: Weekday Metrorail Ridership for Build Alternatives (2040)

Source of Riders	Alternative B (# boardings)
Diversions from Automobile Mode (vs. No Build)	5,766
Diversions from Bus Mode (vs. No Build)	1,458
Diversions from Existing Metrorail Stations (vs. No Build)	
Braddock Road Station	*2,142*
Ronald Reagan Washington National Airport Station	*83*
Crystal City Station	*1,832*
Metrorail Subtotal	4,057
Total Weekday Potomac Yard Metrorail Station Boardings	**11,282**

Page 26, Section 6.1 Opening Year Conditions, Figure 6-1 Opening Year 2016 Bus Services

(see following page)

Figure 6-1: Opening Year 2020 Bus Services



Page 27, Section 6.1 Planned Bus Services by 2016, 1st and 2nd Paragraphs and Table 6-2 New and Modified Bus Services by 2016

Planned Bus Services by 2020

In addition to the existing bus routes, new bus routes and route modifications are planned to accommodate existing and on-going development in the Potomac Yard area. This includes new DASH cross-town and circulator services. These additional and modified bus services are shown in **Figure 6-1** and **Table 6-2** and described in the following subsections.

Appendix E contains 2020 transit operating plans and maps for the planned new routes. Note that these route plans are developed with headways based on planning practice or financial considerations. They do not reflect adjustments to frequency or vehicle type to balance passenger demand from ridership model runs.

Table 6-1: New and Modified Bus Services by 2020

Route	Primary Alignment in Potomac Yard Area	Span of Service	Frequency of Service (Minutes)
Metrobus Routes			
New Route 9X	CCPY Transitway	Weekday - 5:30 AM to 1:00 AM Saturday - 6:30 AM to 1:00 AM Sunday - 7:30 AM to 11:30 PM	Weekday Peak – 12 Weekday Off-Peak - 15 Weekend - 20 (all day Saturday and Sunday)
Extended Route 9S	Potomac Avenue from South Glebe Road to Potomac Yard Shopping Center	Weekday - 5:30 AM to 1:00 AM Saturday - 6:30 AM to 1:00 AM Sunday - 7:30 AM to 11:30 PM	Weekday Peak - 6 Weekday Off-Peak - 15 Weekend - 20 (all day Saturday and Sunday)
DASH Routes			
New Cross-town Route (AT9)	Mt. Vernon and Reed Avenues	To be determined	Weekday Peak - 15 (Other time periods not available)
New Potomac Yard Circulator Route (AT15)	CCPY Transitway and Main Line Boulevard	To be determined	Weekday Peak - 10 (Other time periods not available)

Source: Crystal City/Potomac Yard Transitway Operations Plan, WMATA, 2012.

Page 27, Section 6.1.2 Crystal City/Potomac Yard Transitway, 1st and 2nd Paragraphs

6.1.2 Crystal City/Potomac Yard Transitway

The Crystal City/Potomac Yard (CCPY) Transitway, shown in **Figure 6-1**, is a planned dedicated transitway that will extend approximately five miles from the Braddock Road Metrorail Station in the south to the Pentagon and Pentagon City in the north. The first phase of the CCPY Transitway was implemented in 2014. Within the Arlington County part of the Potomac Yard study area, the transitway operates along portions of Crystal Drive, U.S. Route 1, South Glebe Road, and Potomac Avenue. In the City of Alexandria portion of the study area, Phase 1 of the transitway operates along Potomac Avenue to East Glebe Road, East Glebe Road to U.S. Route 1, and U.S. Route 1 south of the study area. In future phases, the U.S. Route 1 portions of the transitway will include exclusive lanes dedicated to transit service, while the portions of the transitway along Potomac Avenue and South Glebe Road will operate in mixed traffic.

Implementation of the CCPY Transitway service involved the modifications to the existing bus services in the Potomac Yard area; Metrobus 9 Line services were consolidated to accommodate the new Metroway service.

The current Metrobus 9S service will be extended to the Potomac Yard Shopping Center from its current terminal in the Arlington portion of Potomac Yard. The hours of service of the existing Route 9S will be extended, and service will run on weekends after the transitway opens;

A new "9X" premium service extending along the entire length of the corridor between the Braddock Road Metrorail Station and the Crystal City Metrorail Station will be implemented after the opening of the Alexandria portion of the transitway; and

The current Metrobus 9E will continue to provide service between the Braddock Road Metrorail Station and Pentagon Metrorail Station but it will be rerouted off its current alignment on U.S. Route 1 to instead run along Potomac Avenue and Crystal Drive from East Glebe Road to 15th Street South in Arlington.

Page 28, Section 6.1.3 New DASH Routes, 1st Paragraph

6.1.3 New DASH Routes

DASH anticipates implementing two new bus routes by 2020 to supplement their existing services in the Potomac Yard area. These bus routes are shown as planned in **Table 6-2** and comprise the following:

- **Cross-town Route (AT9)** will operate between the Mark Center and Potomac Yard; it is anticipated that this route would follow the route alignment of DASH Route AT10 through the Potomac Yard area; and
- **Potomac Yard Circulator (AT15)** will operate between the Braddock Road Metrorail Station and Potomac Yard; it is anticipated that this route would operate along Main Line Boulevard to and from the CCPY Transitway, but it would serve all local stops along its route alignment.

Page 28, Section 6.2.1 No Build Alternative, 1st and 2nd Paragraphs

No Build Alternative

- The No Build Alternative includes a number of changes to the bus network between 2020 and 2040. These changes are intended to serve the development envisioned for Potomac Yard beyond 2020, including the redevelopment of North Potomac Yard. This includes an additional DASH cross-town circulator (AT14) from Potomac Yard to the Landmark area.
- In the Arlington County portion of the CCPY Transitway, conversion from busway to streetcar service is planned (Arlington County 2013 – 2022 Capital Improvements Program), with operation beginning in 2019. A potential future extension of the streetcar line into the Alexandria portion of Potomac Yard will be evaluated after 2020. This potential streetcar extension would need to complete technical analysis and obtain required financial commitments. Therefore, the potential streetcar conversion is not included in the No-Build Alternative.

Page 32, Section 7.2.1 No Build Alternative, 1st Paragraph

The pedestrian and bicycle network for the No Build Alternative would be comparable to the conditions in 2020. Connectivity within Potomac Yard will be enhanced through the construction of the grid network of streets and sidewalks in North Potomac Yard.

Page 33, Section 8.2.1 No Build Alternative, 3rd Paragraph

In addition, Build Alternative D would be constructed over a portion of the parking lot adjoining the Regal Potomac Yard movie theater, resulting in the loss of parking spaces. Although with the planned redevelopment of North Potomac Yard between 2020 and 2040, the need for those existing spaces would be negated by new off-street parking facilities included in the new mixed-use development.

Page B-1, Section 8.2.1 Surrounding Land Uses, 2nd Paragraph and Table B-1 Development Levels for Opening Year 2016 (in square feet)

The City of Alexandria provided the aggregate development levels for these TAZs for the opening year (2020) and horizon year (2040), which are shown in **Tables B-1** and **B-2**, respectively. The plan approvals in place for the North Potomac Yard area allow for both a base amount of development and additional development if a Metrorail station is developed in accordance with certain provisions. This additional development is not a direct effect of the station itself (i.e., it is not a part of the Metrorail station project), but is called a "secondary effect" under NEPA. Potential secondary effects are assessed separately in the Potomac Yard EIS Metrorail Station *Secondary and Cumulative Effects Technical Memorandum*.

Table B-1: Development Levels for Opening Year 2020 (in square feet)

Alternative	Potomac Greens/ Old Town Greens (TAZ 1577)	South Potomac Yard (existing and proposed) (TAZ 1578)	North Potomac Yard (existing) (TAZ 1573)	Additional in North Potomac Yard (TAZ 1573)	Total
No Build Alternative	500,000	1,885,000	600,000	0	2,985,000
Alternative B	500,000	1,885,000	600,000	500,000	3,485,000

Source: City of Alexandria

*For purposes of the traffic assessment, the existing North Potomac Yard development volume of 600,000 square feet was used as a conservative assumption, and the total 2016 development level assumed is accordingly slightly higher and the same as the totals for Alternatives A and B.

Page B-3 and B-4, Section 8.2.1 Surrounding Land Uses, 5th Paragraph and Table B-4 Land Use by Type for Year 2020 and Year 2040

For the North and South Potomac Yard areas, the relative proportions of different land uses were assumed as defined in **Table B-3** and were scaled proportionately to the current development volume estimates provided by the City of Alexandria for 2020 and 2040, which are as follows:

- In 2020, the land use in North Potomac Yard is all retail for the No Build Alternative and Build Alternatives A and D.
- North Potomac Yard in Year 2020 has 600,000 square feet of retail and an additional 500,000 square feet of mixed-use development for Build Alternative B.
- Alternative D requires removal of the existing movie theater in the North Potomac Yard area and therefore will have slightly lower land use development (75,000 square feet) in the opening year. Removal of the movie theater would not create any substantial traffic effect during the AM or PM peak hour traffic condition. The 2020 traffic analysis for Alternative D used the conservative assumption of the existing 600,000 square feet of retail (no reduction for removal of movie theater).
- In Year 2020, South Potomac Yard is assumed to have a mix of land uses (**Table B-3**) for each Build Alternative.
- In Year 2040, both the South and North Potomac Yard have a mix of land uses (**Table B-3**) for each Build Alternative.

The computed land use by type for all the alternatives is shown in **Table B-4**. The regular and additional developments in North Potomac Yard that appear in some of the Build Alternatives (see **Table B-1** and **Table B-3**) are added together to simplify calculations.

Table B-4: Land Use by Type for Year 2020 and Year 2040

South Potomac Yard									
		Year 2020				Year 2040			
Type	Units	No Build	Alt A	Alt B	Alt D	No Build	Alt A	Alt B	Alt D
Office	SF	504,356	504,356	504,356	504,356	1,351,192	1,351,192	1,351,192	1,351,192
Hotel	rooms	84	84	84	84	224	224	224	224
Retail	SF	82,289	82,289	82,289	82,289	220,456	220,456	220,456	220,456
Residential	DU	829	829	829	829	2,222	2,222	2,222	2,222
North Potomac Yard									
		Year 2020				Year 2040			
Type	Units	No Build	Alt A	Alt B	Alt D	No Build	Alt A	Alt B	Alt D
Office	SF	-	-	75,294	-	301,174	606,113	877,169	621,172
Hotel	rooms	-	-	15	-	61	123	178	126
Retail	SF	600,000	600,000	651,046	525,000	204,186	410,924	594,691	421,133
Residential	DU	-	-	242	-	970	1,952	2,825	2,000

DU = Dwelling Unit; SF = square feet

Source: Land use volumes assumed in Potomac Yard Infrastructure Traffic Analysis, 2005, and Potomac Yard Multimodal Transportation Study, 2010, scaled to current City of Alexandria estimated development volumes for South and North Potomac Yard.

Page B-4 and B-5, Section 8.2.1 Surrounding Land Uses, 5th Paragraph and Table B-4 Land Use by Type for Year 2020 and Year 2040

Table B-5 shows the population, employment and numbers of households computed for the North and the South Potomac Yard areas for the Year 2020 and the Year 2040 using the factors computed above. These projections are compared with the MWCOG's Round 8.0 Cooperative Land Use projections for 2016 and 2040. Round 8.0 land use projections are based on older assumptions for future development in Potomac Yard than the current development estimates provided by the City of Alexandria and are consequently lower.

Table B-5: Land Use Comparison of MWCOG and City of Alexandria Forecasts

South Potomac Yard										
Type	Year 2020					Year 2040				
	MWCOG Forecast (2016)	City of Alexandria				MWCOG Forecast	City of Alexandria Forecast			
		No Build	Alt A	Alt B	Alt D		No Build	Alt A	Alt B	Alt D
Population	44	1,664	1,664	1,664	1,664	2,089	4,457	4,457	4,457	4,457
Employment	6	1,885	1,885	1,885	1,885	410	5,050	5,050	5,050	5,050
Households	21	829	829	829	829	1,014	2,222	2,222	2,222	2,222
North Potomac Yard										
Type	Year 2020					Year 2040				
	MWCOG Forecast (2016)	City of Alexandria Forecast				MWCOG Forecast	City of Alexandria Forecast			
		No Build	Alt A	Alt B	Alt D		No Build	Alt A	Alt B	Alt D
Population	336	-	-	486	-	6,177	1,946	3,915	5,666	4,013
Employment	1,483	1,200	1,200	1,561	1,050	8,758	1,442	2,902	4,200	2,974
Households	157	-	-	242	-	2,998	970	1,952	2,825	2,000
South And North Potomac Yard (Total)										
Type	Year 2020					Year 2040				
	MWCOG Forecast (2016)	City of Alexandria Forecast				MWCOG Forecast	City of Alexandria Forecast			
		No Build	Alt A	Alt B	Alt D		No Build	Alt A	Alt B	Alt D
Population	380	1,664	1,664	2,150	1,664	8,266	6,402	8,372	10,123	8,469
Employment	1,489	3,085	3,085	3,445	2,935	9,168	6,492	7,952	9,250	8,024
Households	178	829	829	1,072	829	4,012	3,192	4,174	5,047	4,222

Source: MWCOG Round 8.0 Cooperative Land Use Forecast; population, employment and households calculated based on land use volumes assumed in *Potomac Yard Infrastructure Traffic Analysis*, 2005, and *Potomac Yard Multimodal Transportation Study*, 2010, scaled to current City of Alexandria estimated development volumes for South and North Potomac Yard.

Appendix D, Pages D-1 through D-9

Page D-1

Detailed 2020 Metrorail Operating Plans

Page D-2

WMATA 2020 Metrorail Operating Plan

Page D-3

WMATA 2020 Metrorail Operating Plan

Page D-4

WMATA 2020 Metrorail Operating Plan

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WMATA 2020 Metrorail Operating Plan

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WMATA 2020 Metrorail Operating Plan

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WMATA 2020 Metrorail Operating Plan

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WMATA 2020 Metrorail Operating Plan

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WMATA 2020 Metrorail Operating Plan

5. LAND USE, ZONING, AND CONSISTENCY WITH LOCAL PLANS TECHNICAL MEMORANDUM

Page 4, Section 1.2.1 Land Use

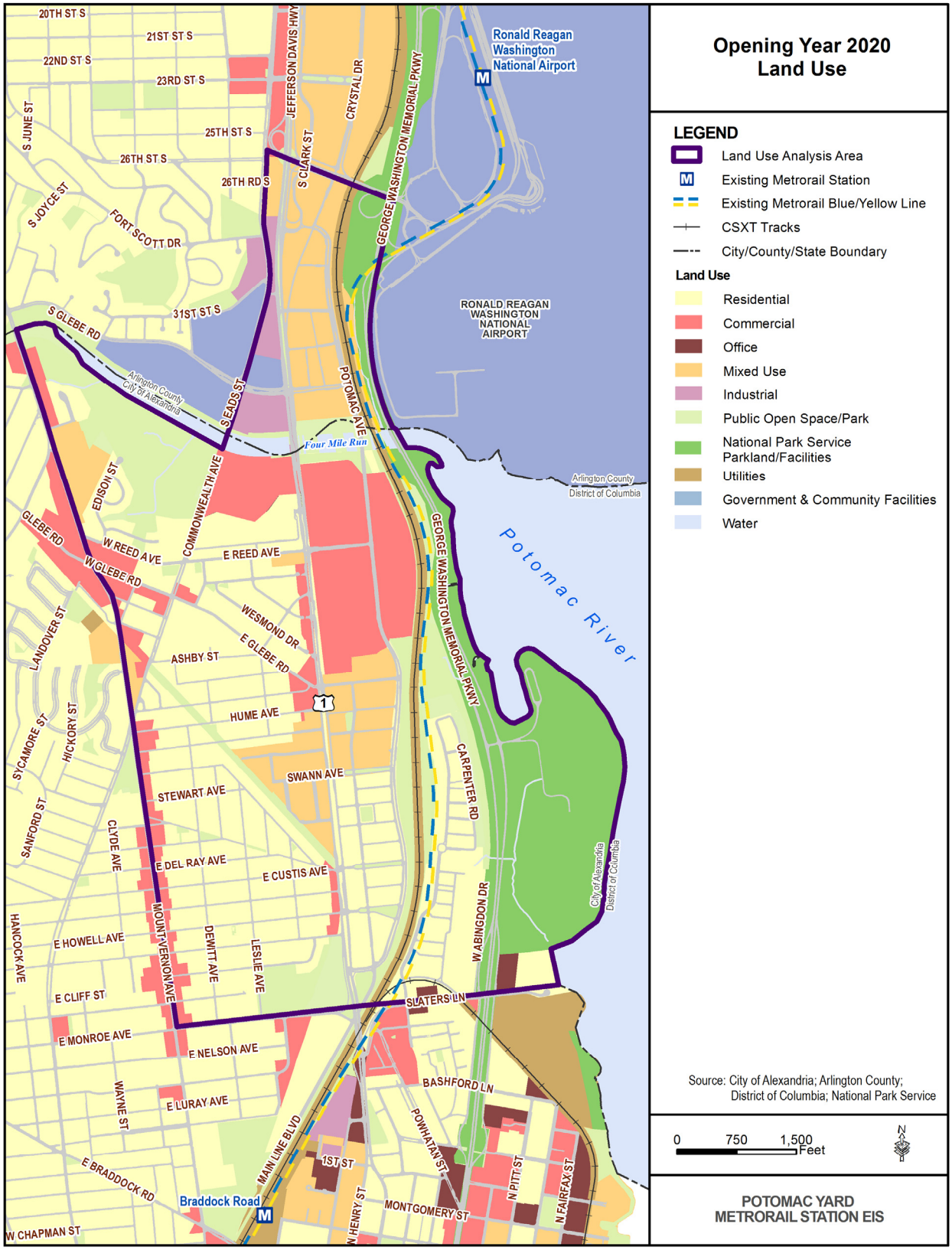
Land Use

Existing land use was analyzed based on aerial imagery and site visits to the analysis area. Anticipated land use changes by 2020 were determined based on existing plans and information provided by the City of Alexandria Planning and Zoning Department regarding redevelopment expected to occur by 2016. The anticipated impacts of each alternative on land use were determined by comparing the alternative facilities and associated structures to the opening year land uses (existing and 2020 planned uses) in those locations and noting any possible conflicts.

Page 6, Figure 2-1 Opening Year 2016 Land Use

(see following page)

Figure 2-1: Opening Year 2020 Land Use



Page 7, Anticipated Land Use Changes by 2016

Anticipated Land Use Changes by 2016

Railroad Corridor

The land between the CSXT and WMATA rights-of-way is planned to be converted to a public park, known as the Rail Park, by 2020.

North Potomac Yard (City of Alexandria)

North Potomac Yard comprises the portion of Potomac Yard within the City of Alexandria that is currently occupied by the Potomac Yard Shopping Center and a movie theater. Between 2012 and 2020, the City of Alexandria anticipates that no redevelopment will take place in North Potomac Yard, and that the existing 600,000 square foot retail center and movie theater will remain operational through at least 2018.

South Potomac Yard (City of Alexandria)

The area known as South Potomac Yard is covered by the *Potomac Yard/Potomac Greens Small Area Plan* (City of Alexandria, 1992) and is currently undergoing development. South Potomac Yard includes the portion of Potomac Yard south of the existing shopping center and west of the CSXT right-of-way. The City of Alexandria anticipates that at least 1.885 million square feet of the permitted development in South Potomac Yard will be completed by 2020. Based on adopted City plans and zoning, the area's land use will be predominantly moderate-density residential and mixed use (residential with neighborhood-serving retail, office and hotel), consisting predominantly of townhomes and mid-rise buildings. Higher density commercial and office uses will be located between East Glebe Road and Swann Avenue, adjacent to the existing Potomac Yard Shopping Center.

The land between CSXT and Potomac Avenue, South of East Glebe Road, opened as a 24-acre park known as Potomac Yard Park in December 2013. Custis Avenue Park has opened to the public also. Swann Avenue Park and Howell Avenue Park, linear parks in the middle of Swann Avenue and Howell Avenue, respectively, are anticipated to be complete in 2020.

Page 12, Section 2.3.1, Table 2-1 Summary of Applicable Local Plans

Table 2-1: Summary of Local Plans and NPS Plans, Governing Laws, and Policies

Plan	Analysis Area Provisions	Metrorail Station Provisions
City of Alexandria Plans		
North Potomac Yard Small Area Plan (2010)	Envisions a transit-oriented, mixed use development. Concentrations of residential, office, and retail uses would vary among neighborhoods, with the highest intensity of office uses in the Metro Square Neighborhood, which would be focused on a new Metrorail station. The plan defines a "Flexible Metrorail Zone," envisioned as an urban place centered on the Metrorail station.	Requires a Metrorail station to support the level of development planned. Station location recommended on the east side of the CSXT right-of-way, north of the existing traction power substation. The station location recommended in the plan is in the general location of Build Alternative B. This recommended station location, the NPYSAP notes, is subject to coordination among stakeholders, resolution of environmental issues, and consideration of alternatives under a NEPA process.

Plan	Analysis Area Provisions	Metrorail Station Provisions
Potomac Yard / Potomac Greens Small Area Plan and CDD Concept Plan (1992, Amended 1999, 2005, 2007, 2008, 2009, 2010)	Recommends a mix of land uses, with residential uses concentrated towards the southern part of Potomac Yard, public open space on the eastern edge, and higher-density office, residential, and retail uses in the central portion of Potomac Yard.	The CDD Concept Plan requires a Metrorail reservation in the Potomac Greens portion of the analysis area. The location in the plan is the approximate location of Build Alternative A. However, portions of plan are superseded by the *North Potomac Yard Small Area Plan*, which mandates a Metrorail station in the vicinity of the location of Build Alternative B.
Waterfront Small Area Plan (2012)	The portion of the waterfront adjacent to the analysis area is under NPS ownership.	Plan references need to connect Daingerfield Island (GWMP, NPS) with a possible Metrorail station.
Oakville Triangle and Route 1 Corridor Vision Plan (2015)	Recommends a mix of land uses and concentrates planned development near transit stops and in proximity to the planned Potomac Yard Metrorail Station.	The plan anticipates the construction of a Metrorail station in Potomac Yard and facilitates better connectivity through new pedestrian and bicycle accommodations.
City of Alexandria Comprehensive Transportation Master Plan	Corridor A is a north-south corridor that generally follows US Route 1 in the project study area and calls for the development of more reliable transit services through the use of dedicated transitways such as the CCPY Transitway that is now operating in the Potomac Yard area. Other types of improvements envisioned include smart shelters, pedestrian improvements at intersections along U.S. Route 1, and a new bicycle/pedestrian bridge over the CSXT Railroad and the Metrorail Line.	The plan seeks to establish superior transit service connection with local and regional transit service including Metrorail.
City of Alexandria Pedestrian & Bicycle Master Plan Update (Draft, 2015)	Updates the pedestrian and bicycle chapters of the City Transportation Master Plan. Recommends additional bicycle accommodations within Potomac Greens and Potomac Yard with expanded connections to areas west of U.S. Route 1.	Includes strategies to improve pedestrian and bicycle access through and across rail corridors to connect key destinations such as existing and future Metrorail stations, and prioritizes the installation of bicycle parking at transit stops/stations.
City of Alexandria Environmental Action Plan 2030	Supports Small Area Plans that increase density in and around Metro Stations.	Plan calls for construction of a Metrorail station in Potomac Yard by the time occupancy of the development reaches 70%
City of Alexandria Urban Forestry Master Plan (2009)	Establishes goals to increase the tree canopy throughout the City by better maintaining its existing trees and adding a significant number of new trees. Includes specific recommendations for improving the urban forest within parks and other open spaces.	Neither assumes nor precludes a Metrorail station at Potomac Yard.
City of Alexandria Master Plan (1992)	Recommends mixed-use development in Potomac Yard. Specific recommendations are included in the City small area plans.	Plan recommends a new Metrorail station as part of any potential development in Potomac Yard, but does not specify a location.
City of Alexandria Strategic Master Plan for Recreation, Parks and Cultural Activities (2003)	Provides a broad policy and management framework to guide decision-making to meet current and future land use and recreational needs of Alexandria residents for the following ten years (2003 to 2013). Addressed previous playing fields that existed prior to the South Potomac Yard redevelopment.	Neither assumes nor precludes a Metrorail station at Potomac Yard.

Plan	Analysis Area Provisions	Metrorail Station Provisions
City of Alexandria Open Space Plan (2003)	Establishes a framework for addressing Alexandria's short and longer term open space needs. It looks at ways to maximize the City's limited open space opportunities by creating an open space system that builds upon and responds to the City's dense, urban context. Recommended the creation of significant, usable public open space areas in Potomac Yard.	Neither assumes nor precludes a Metrorail station at Potomac Yard.
City of Alexandria Master Plan Water Quality Management Supplement (2001)	Classifies the development suitability of areas within the City based on potential impacts to water quality. Wetlands and stream buffer areas are classified as "generally unsuitable for development." Floodplains and floodplain soils are classified as having "limited development potential that requires special consideration." Small area plans will consider the general recommendations and apply them appropriately.	Neither assumes nor precludes a Metrorail station at Potomac Yard.
Northeast Small Area Plan (1992)	Focuses on preserving and protecting existing neighborhoods, with compatible redevelopment. Discourages non-local traffic.	Neither assumes nor precludes a Metrorail station in Potomac Yard.
Arlington County Plans		
Potomac Yard Phased Development Site Plan (2000)	Provides for a mix of uses in the Arlington County portion of Potomac Yard, to include residential, hotel, office, and retail uses.	Neither assumes nor precludes a Metrorail station in Potomac Yard.
Arlington County General Land Use Plan (2011)	Reflects the overall vision for future development in Arlington. Incorporates the recommendations of the Potomac Yard Phased Development Site Plan into the overall County land use policy.	Neither assumes nor precludes a Metrorail station in Potomac Yard.
Crystal City Sector Plan (2010)	Provides for redevelopment of Crystal City, with increased densities, open space, and pedestrian-oriented streetscape.	Neither assumes nor precludes a Metrorail station in Potomac Yard.
Industrial Land Use and Zoning Study (2000)	Examines appropriate locations for industrial land uses within Arlington County.	Neither assumes nor precludes a Metrorail station in Potomac Yard.
Regional Plans and NPS Plans, Governing Laws, and Policies		
VRE System Plan 2040 Study (VRE, 2014)	Recommends expanding the capacity of the Long Bridge Railroad Corridor (between the VRE Alexandria Station and southwest Washington DC) from three tracks to four tracks – two for passenger trains and two for freight trains.	No mention of a Metrorail station at Potomac Yard.
GWMP Foundation Document (NPS, 2014)	Describes the purpose of the GWMP, its significance, its fundamental resources and values, and its policy requirements, special mandates, and administrative commitments.	No mention of a Metrorail station at Potomac Yard.
Four Mile Run Restoration Master Plan (NVRC, 2006)	Envisions a park along Four Mile Run in the analysis area, including converting the former railroad bridge over Four Mile Run west of Potomac Avenue into open space and removing an additional former railroad bridge.	No mention of a Metrorail station at Potomac Yard or near Four Mile Run in the plan recommendations.
GWMP Corridor Management Program (NPS, 2005)	Purpose of the GWMP includes protecting and managing natural, cultural, and recreational resources and scenic values.	No mention of a Metrorail station at Potomac Yard. The program addresses the preservation of the historic character and scenic views along the parkway.

Plan	Analysis Area Provisions	Metrorail Station Provisions
Resource Management Plan: George Washington Memorial Parkway (NPS, 1994)	Role of the GWMP includes preserving Potomac River shoreline, providing recreational opportunities, and providing a scenic roadway as a memorial to George Washington. Plan guides NPS natural resource management for the GWMP.	No mention of a Metrorail station at Potomac Yard. However, the plan emphasizes the protection of scenic views along the parkway.
GWMP- Potomac Greens Final EIS (NPS, 1991)	The Final EIS analyzed the potential impacts of the Potomac Greens development to the GWMP and identified alternatives that might eliminate or mitigate those impacts.	One of the six alternatives (Alternative 1A) references a location of a future Metrorail station at the proposed location of Alternative A.
Mount Vernon Memorial Highway (MVMH) Cultural Landscape Inventory and Report (NPS, 1987)	Describes past planning efforts for the MVMH (now part of the GWMP), which focused on design and landscaping of areas along the roadway "to maximize scenic, esthetic, and commemorative qualities." The report (Vol. I, pp. 72-74) documents the original design principles of the MVMH (engineering, landscape architecture and memorial character). The landscape architecture principles include: "Conserving the natural scenery as a means to quickly buffer adjacent properties, upgrade the existing woodland, and preserve existing topsoil;" and "Distributing new plantings in a 'natural' configuration that 'expresses not man's will but the operation of natural forces.'"	No mention of a Metrorail station at Potomac Yard. However, the CLR does note the encroachment of the Metrorail Yellow line and its visual impact on the MVMH.
Capper-Cramton Act of 1930 (46-Stat. 482)	Lands of the GWMP were and continue to be acquired under the Capper-Cramton Act of 1930 (46-Stat. 482), for conservation, environmental, and recreational purposes consistent with the provisions of this act.	The Capper Cramton Act was established long before the Metrorail System was planned and constructed. However, GWMP/MVMH took obvious efforts to block undesired views of "rail transport" from the roadway, particularly in the area of Potomac Yard.
National Park Service Organic Act of 1916 (39-Sta. 535)	Directs NPS to "…promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."	The Organic Act was established long before the Metrorail System was planned and constructed.
NPS Director's Order 77-1: Wetland Protection (2002)	Establishes the policies, requirements, and standards through which NPS meets its responsibilities to protect and preserve wetlands.	Requires projects that affect NPS wetlands to prepare a Statement Findings for Wetlands and implement its provisions.
NPS Director's Order 77-2: Floodplain Management	Establishes the policies, requirements, and standards through which NPS preserves floodplain values and minimizes potentially hazardous conditions associated with flooding.	Requires projects that affect NPS floodplain to prepare a Statement Findings for Floodplains and implement its provisions.

Page 19, Section 3.3.2 Build Alternatives, Build Alternative B

Plans for the GWMP, as described in the George Washington Memorial Parkway Corridor Management Program (2005), the Resource Management Plan: George Washington Memorial Parkway (1994), and the Mount Vernon Memorial Highway Cultural Landscape Report (1987), would not be applicable to Build Alternative B, as they do not address the addition of a Metrorail station in the Potomac Yard area. ~~Build Alternative B would require the use of GWMP land, as well as 1.71 acres of the Greens Scenic Area easement,~~

~~the intention of which is to preserve and enhance the visual quality of the GWMP. Build Alternative B could not proceed unless the scenic easement is released by NPS. If Build Alternative B is able to proceed, some views from the GWMP roadway and parkland would be affected. In 2020, the visual character of the corridor would be changed from a divided four-lane roadway consistently framed by vegetation (with intermittent views of rail transportation and built elements to the west and river to the east) to that of a roadway framed by vegetation but more frequently interrupted with views of transportation facilities and built elements. By 2040, restored vegetation would grow to filter views of the Metrorail station from the GWMP roadway and park, although the trees would unlikely reach a height and depth that would consistently block views of the station. The visual quality of the continuous view corridor would be high in 2020 and in 2040. See the Visual Resources Technical Memorandum for more detail.~~

NPS governing laws also do not specifically address the addition of a Metrorail Station at Potomac Yard. In compliance with NPS policies Director's Orders 77-1 and 77-2, a *Statement of Findings for Floodplains and Wetlands*, has been prepared for the project due to proposed impacts to NPS floodplain and wetlands.

Page 20, Table 3-3 Conformity with Local Plans by Alternative

Table 3-3: Conformity with Local Plans by Alternative

Alternative	Anticipated Impacts on Local Plans and NPS Plans, Governing Laws, and Policies
No Build	• Inconsistent with the *North Potomac Yard Small Area Plan,* the *Potomac Yard/Potomac Greens Small Area Plan*, and the *City of Alexandria Master Plan*. • Not applicable to plans for the GWMP or the NPS Organic Act
Build Alternative B	• Consistent with the *North Potomac Yard Small Area Plan,* the *City of Alexandria Master Plan,* and the *Water Quality Management Supplement*. • Consistent with the *Potomac Yard/Potomac Greens Small Area Plan* (superseded by the *North Potomac Yard Small Area Plan*). • Not applicable to plans for the GWMP or the NPS Organic Act. Project would impact floodplain and wetlands and is required to prepare and implement a Statement of Findings in complains with NPS Director's Orders 77-1 and 77-2.

6. NEIGHBORHOODS AND ENVIRONMENTAL JUSTICE TECHNICAL MEMORANDUM

Page 5, Section 1.3.2, additional description or methodology:

Note: The methodology of the environmental justice analysis was expanded to include the following multi-step process to identify the potential for disproportionately high and adverse effects on environmental justice populations:

- *Impact categories with localized impacts and the potential for high or disproportionate impacts to environmental justice populations were selected: traffic, bicycle and pedestrian facilities, parking, land acquisition and displacements, land use, neighborhoods and community facilities, visual resources, parklands, safety and security, noise, vibration, air quality, and temporary construction impacts. Other categories evaluated in the EIS were not considered, because they either presented no impacts, or their effects would be experienced by all populations living in the study area, regardless of race, ethnicity, or socioeconomic status.*
- *The Preferred Alternative was then evaluated in each category using the findings of the specific environmental resource analyses of the EIS. The methodologies used in those resource analyses and their complete findings are reported in the other sections of Chapter 3.*
- *Impact categories with potential effects were then analyzed to determine whether those effects were high or disproportionate to environmental justice populations.*

Page 6, Section 2.1.1

Alexandria Potomac Yard

By 2020 it is anticipated that there will be new mixed-use and residential neighborhoods in South Potomac Yard.

Page 18, Section 3.2, note added

Note: Impact categories with localized impacts and the potential for high or disproportionate impacts to environmental justice populations were identified using the findings of the environmental resource analyses of the EIS.

Page 18, Section 3.2.1 No Build Alternative, note added

Note: No disproportionately high and adverse effects on identified minority and/or low-income populations were identified under the No Build Alternative. Potential effects as a result of the additional development permissible in Potomac Yard without a Metrorail Station were considered as secondary effects and presented in Section 3.24 Secondary and Cumulative Effects in the Final EIS.

Page 19, 3rd paragraph, note added

Note: Additional public involvement activities were conducted and presented in the Final EIS, Section 3.7 Environmental Justice.

8. VISUAL RESOURCES TECHNICAL MEMORANDUM

Global edits to Visual Resources analysis for 2040 methodology and results:

Note: Additional future background development anticipated in Potomac Yard by 2040 that would contribute to potential impacts is considered a cumulative effect and is analyzed separately. 2040 viewshed photo renderings for the direct effects analysis (both No Build Alternative and Preferred Alternative) presented in Section 3.8 of the Visual Resources analysis were revised to remove potential future development in North Potomac Yard. This revised analysis is presented in the Final EIS, Section 3.8 Visual Resources and Section 3.24 Secondary and Cumulative Effects.

Page 4, Section 1.3.1 Viewshed Identification, 1st Paragraph

1.3.1 Viewshed Identification

Nine existing viewsheds (eight locations plus the continuous visual experience along GWMP is which is considered a viewshed) were identified for consideration in the Draft EIS and are reviewed in this technical memorandum. After the identification of the Locally Preferred Alternative, four additional viewsheds as well as wintertime views for all the viewsheds were prepared for consideration in the Final EIS. Updated views for all twelve of the viewsheds are presented in the **Final EIS Section 3.8 Visual Resources.** In

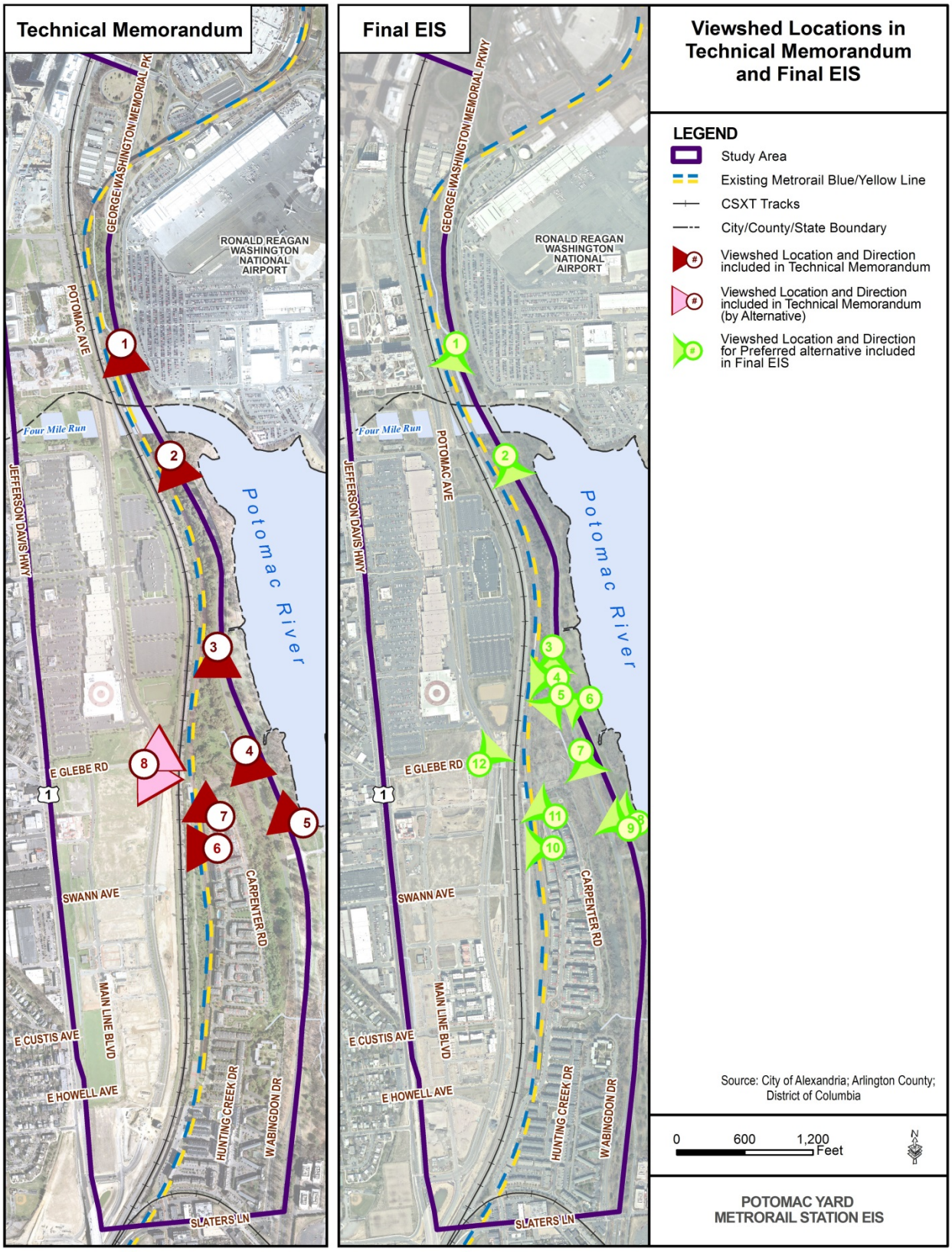
Figure, the panel on the left shows the eight selected viewpoints presented in this technical memorandum and considered in the Draft EIS and the panel on the right shows the twelve viewsheds applied to the Preferred Alternative in the Final EIS.

The nine viewsheds considered in this technical memorandum were defined as the surface area visible from a given viewpoint or series of viewpoints, were selected for analysis and include locations where the project may be visible from GWMP, Potomac Greens, or Potomac Yard. The viewpoints were selected because of their proximity to the proposed alternatives, including both station locations and relocated track structure, and are intended to be representative of the series of viewsheds along GWMP, Potomac Greens, and Potomac Yard. Specifically, Viewsheds 2 and 4 represent views identified in NPS's *Vegetation of the George Washington Memorial Parkway Cultural Landscape Report* (*Vegetation CLR*) (NPS 2009). The other viewsheds considered in this technical memorandum represent views experienced by motorists, visitors, and residents within the study area.

Page 5, Figure 1-1 Viewshed Locations

[*The Final EIS analyzed additional viewsheds and uses different numbering for the viewsheds compared to the numbering used in this Visual Resources Technical Memorandum. The figure shown on the following page compares the two analyses.*]

Figure 1-2: Viewshed Locations



Page 7, Section 2.0 Opening Year Conditions

Independent of the proposed action, viewsheds within Potomac Yard and from Potomac Greens would likely be altered by 2020. Changes to the visual environment would include at least 1.885 million square feet of development in South Potomac Yard. Planned development for 2020 would include the construction of already permitted development blocks near East Glebe Road and continued growth of new trees in Potomac Yard Park.

Pages 21 through 69, Sections 3.1 and 3.2

All references to Year 2016 are changed to Year 2020

9. CULTURAL RESOURCES TECHNICAL MEMORANDUM

Page 1, Introduction, 3rd Paragraph

[Note: This technical memorandum summarizes the results of cultural resource investigations through January 2013 to identify and evaluate potential effects to significant cultural resources within the Areas of Potential Effects (APEs) for the Draft EIS. The findings of this analysis were incorporated into the Draft EIS. The analysis is ongoing and subsequent information and updated results for Cultural Resources can be found in the ***Historic and Architectural Effects Assessment Report (November 2015), Phase 1 Archaeological Survey Report Potomac Yard Metrorail Station Project (March 2013), Phase 1 Archaeological Survey Addendum Report Potomac Yard Metrorail Station Project (March 2016),*** *and the* ***Potomac Yard Metrorail Station Final Environmental Impact Statement Section 3.9 Cultural Resources.]***

10. AIR QUALITY TECHNICAL MEMORANDUM

Page 6, Section 1.3.5 Impact Analysis, Regional Air Quality Conformity Determination

To demonstrate compliance with the federal Transportation Conformity Rule, a regional conformity determination is required. The project is included in the TPB 2015 CLRP (see **Appendix C** for CLRP project amendment). Because the project is included in the region's CLRP, which was approved by TPB on October 21, 2015, the project is assumed to comply with both the region's air quality conformity goals and the SIP. ~~The project is included in the region's current approved *2013-2018 Transportation Improvement Program* (TIP).~~

Page 8, Section 2.0 Opening Year Conditions

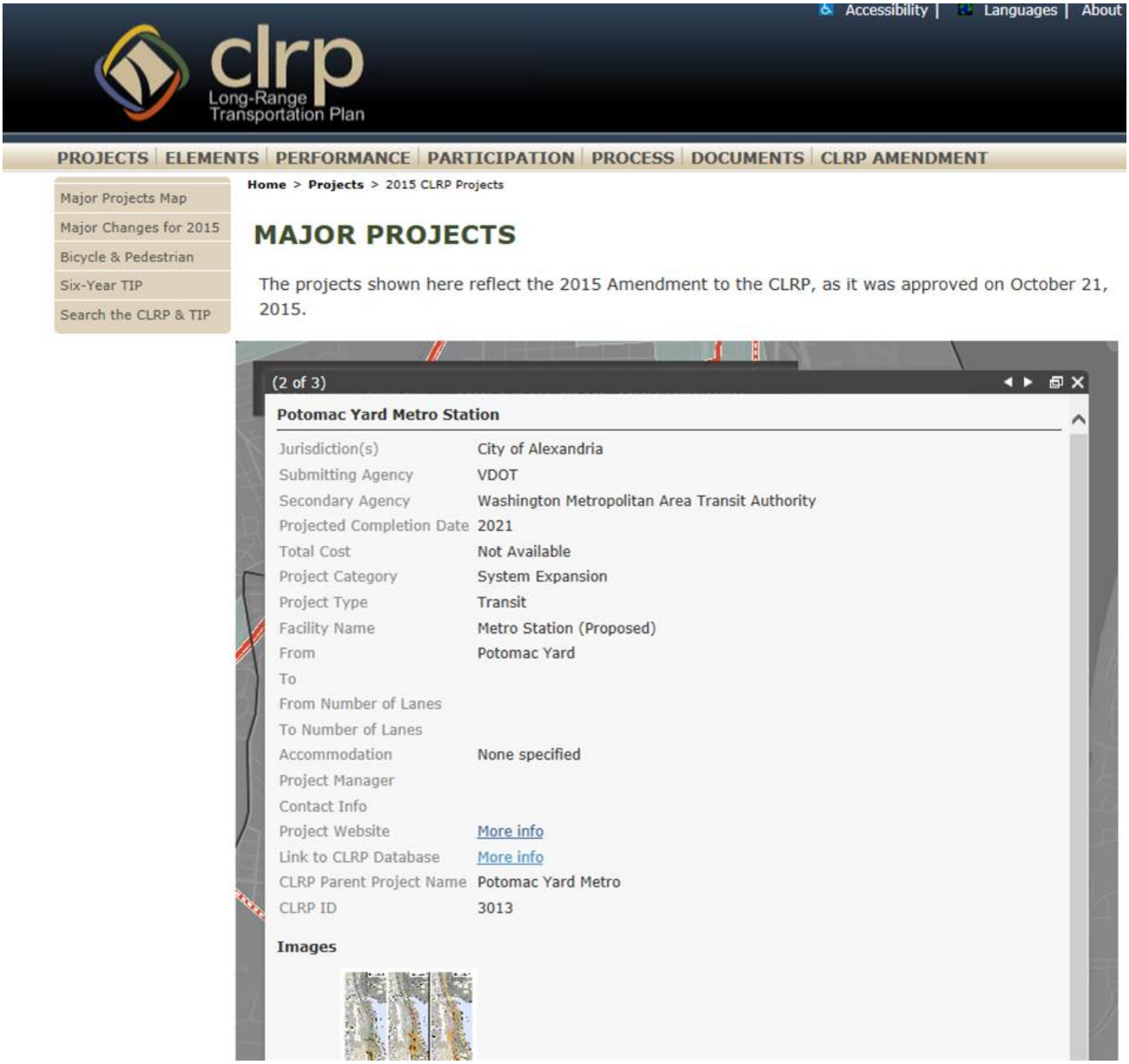
These trends are expected to continue for the foreseeable future through the 2020 opening year.

Page 9, Section 3.2 Build Alternatives

The project is included in the TPB 2015 CLRP.

Appendix C: Financially Constrained Long Range Plan Project Amendment

(see following page)


Accessibility | Languages | About
clrp
Long-Range Transportation Plan
PROJECTS | ELEMENTS | PERFORMANCE | PARTICIPATION | PROCESS | DOCUMENTS | CLRP AMENDMENT
Major Projects Map
Major Changes for 2015
Bicycle & Pedestrian
Six-Year TIP
Search the CLRP & TIP
Home > Projects > 2015 CLRP Projects
MAJOR PROJECTS
The projects shown here reflect the 2015 Amendment to the CLRP, as it was approved on October 21, 2015.
(2 of 3)
Potomac Yard Metro Station
Jurisdiction(s) City of Alexandria
Submitting Agency VDOT
Secondary Agency Washington Metropolitan Area Transit Authority
Projected Completion Date 2021
Total Cost Not Available
Project Category System Expansion
Project Type Transit
Facility Name Metro Station (Proposed)
From Potomac Yard
To
From Number of Lanes
To Number of Lanes
Accommodation None specified
Project Manager
Contact Info
Project Website More info
Link to CLRP Database More info
CLRP Parent Project Name Potomac Yard Metro
CLRP ID 3013
Images

11. NOISE AND VIBRATION TECHNICAL MEMORANDUM

Page 14, Section 2.1 Existing Noise Levels, 2nd Paragraph

As no major new sources of noise will be introduced between now and 2020, the future noise levels are expected to remain approximately the same in the Opening Year of 2020 as the current conditions. For example, it takes a doubling of the traffic volumes (or Metrorail operations) for the noise levels to increase by three dBA (the threshold where most listeners detect the change). However, based on the results of the Metropolitan Washington Council of Governments (MWCOG) version 2.2 regional travel model, traffic in the study area is not expected to increase between 2010 and 2020.

Page 14, Section 2.2 Existing Vibration Conditions, 1st Paragraph

Current ambient vibration levels are dominated by existing CSXT freight train operations, Metrorail pass-bys and vehicular traffic, particularly heavy trucks at locations adjacent to active roadways such as U.S. Route 1. As no new sources of vibration will be introduced between now and 2020, the future vibration levels in the Opening Year of 2020 are expected to remain the same as the current conditions.

Page 15, Section 3.1.1 No Build Alternative, FTA Criteria, 3rd Paragraph

Ambient noise levels under the future No Build Alternative are anticipated to be similar to those under existing conditions. For example, it takes a doubling of the traffic volumes (or Metrorail operations) for the noise levels to increase by three dBA, the threshold where most listeners detect the change. However, based on the results of the MWCOG version 2.2 regional travel model, traffic in the study area is not expected to increase between 2010 and 2020. Therefore, no FTA noise impact is expected under the No Build Condition.

Page 18, Section 3.1.3 Build Alternative B, FTA Criteria, 2nd Paragraph

Overall, only one exceedance of the FTA Category 2 (residential areas) *moderate* criteria is predicted under Build Alternative B; one residence at Site M4 would potentially be affected by additional bus idling at on-street stops by the station. **Figure 3-1** shows the location of the residence with the potential impacts. This impact would be considered a secondary impact of the project. No exceedance of the FTA *severe* impact criteria is predicted. Additionally, none of the project noise levels under Build Alternative B is predicted to exceed the FTA impact criteria at any FTA Category 3 receptors (parks and schools).

Page 23, Section 4.3, Mitigation, Build Alternative B, 1st paragraph

One secondary noise impact is predicted for Build Alternative B. The following mitigation measure is proposed to eliminate noise impacts in the study area:

- Locate on-street bus stops for the station away from ~~new~~ residences ~~planned~~ in the vicinity of Site M4 to minimize noise impacts from idling buses.

Page 24, Section 4, Mitigation, last paragraph

For all Build Alternatives, several mitigation options are available to eliminate or reduce annoyance due to other ancillary sources at the station (such as Public Address (PA) announcements and door chimes) and track switches:

- To shield the closest residences from the station activities and noise (such as door chimes and PA announcements), the proposed stations would be designed to include wind screens (solid or clear walls, such as “plexi-glass”, and sufficiently dense to block the noise source). Proper station design and these wind screens would play the biggest role in shielding the nearby residents from these new station sounds. The station public address system would be designed to limit noise in the station vicinity, for example,

by designing speakers at relatively close spacing, permitting lower audio volumes. The details of the station structure, design and layout are commonly developed during the final design phase of the project.

- For impacts due to switches, the use of the following passive control measures is another option when eliminating noise and vibration at the source is not possible:
    - Low-profile barriers that shield the wheel-rail interaction only, or
    - Relocate the switches behind the station structure thereby using the station itself as a barrier.

12. WATER RESOURCES TECHNICAL MEMORANDUM

Page 18, Table 3-1 Permanent Impacts to NPS and USACE Regulated Wetlands and Table 3-2 Permanent Wetland and WOUS Impact (USACE Regulated)

Table 3-1: Permanent Impacts to NPS and USACE Regulated Wetlands

Alternative	USACE-Wetlands (acres) and WOUS	NPS Wetlands (acres)	TOTAL (acres)
No Build	0.00	0.00	**0.00**
Build Alternative B	1.22 – 1.56	1.13 – 1.45	**1.28 – 1.65**

Total includes overlap

Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 1, and the high-end acreage is for Station Design Option 2. The finalized design would have impacts within this range.

Page 19, Table 3-3 Net New Impervious Surface

Table 3-3: Net New Impervious Surface

Alternative	Impervious Area (acres)
No Build	0.00
Build Alternative B	2.2

Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 1, and the high-end acreage is for Station Design Option 2. The finalized design would have impacts within this range.

Page 20, Table 3-4 Permanent Flood Impact

Table 3-4: Permanent Floodplain Impact

Alternative	100-year (acres)	500-year* (acres)
No Build	0.00	0.00
Build Alternative B	1.48 – 1.89	0.96 – 0.98

**Acreage excludes areas in 100-year floodplain

Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 1, and the high-end acreage is for Station Design Option 2. The finalized design would have impacts within this range.

Page 22, Table 3-5 Permanent Resource Protection Area Impacts

Table 3-5: Permanent Resource Protection Area Impacts

Alternative	Impact (acres)
No Build	0.00
Build Alternative B	3.39 – 3.80

Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 1, and the high-end acreage is for Station Design Option 2. The finalized design would have impacts within this range.

Page 22, Section 3.2.4 Coastal Zone and Chesapeake Bay Preservation Areas

Build Alternative B

Build Alternative B would impact 3.39 – 3.80 acres of RPAs around the proposed platform areas where wetlands have been delineated east of the Metrorail tracks.

13. ECOSYSTEMS AND ENDANGERED SPECIES TECHNICAL MEMORANDUM

Page 11, Section 2.2 Threatened and Endangered Species, Table 2-1

Table 2-1: Federally listed and State listed Species.

Species	Status	Notes/Documentation
Federally Endangered, Threatened, Proposed, and Candidate, or Protected Species		
~~Sensitive Joint- Vetch (*Aeschynomene virginica*)~~	~~Threatened~~	~~This species occurs in fresh to slightly brackish tidal river systems, typically at the outer fringe of marshes or shores. The northern portion of the study area crosses Four Mile Run. Within the study area, Four Mile Run is tidally influenced; therefore, the appropriate habitat to support the Sensitive joint-vetch may occur within the study area.~~
Bald Eagle *(Haliaeetus leucocephalus)*	Bald and Golden Eagle Protection Act of 1940	The College of William & Mary Center for Conservation Biology does not report any bald eagle nests within the City of Alexandria or the study area specifically.
State listed Endangered, Threatened, Proposed, Candidate Species, and Species of Concern		
Appalachian Springsnail *(Fontigens bottimeri)*	State: Listed Endangered	This species may inhabit jurisdictions within the Potomac River basin, including the District of Columbia and Maryland. The VDCR-DNH Natural Heritage database reports potential species or habitat within Arlington County. USFWS lists the Appalachian springsnail as a Federal Species of Concern.
Wood Turtle *(Glyptemys insculpta)*	State: Listed Threatened	VDCR-DNH reports this species in the City of Alexandria. The City of Alexandria Master Plan's Water Quality Supplement (2001) states that "Wood Turtles can be found near clear brooks and streams in deciduous woodlands, although they have also been found in woodland bogs and marshy fields."

Sources:

1. U.S. Fish and Wildlife Service, Virginia Field Office. http://ecos.fws.gov/ipac/; Accessed March 28, 2016;
2. Virginia Department of Conservation and Recreation, Natural Heritage Resources by County. http://www.dcr.virginia.gov/natural_heritage/resources/display_counties.cfm; Accessed April 3, 2012. College of William & Mary, Center for Conservation Biology, *VaEagles Nest Locator*; Accessed at http://www.ccb-wm.org/virginiaeagles/locator.php; Accessed June 18, 2012.
3. City of Alexandria. City of Alexandria Master Plan: Water Quality Management Supplement, Adopted January 13, 2001. Accessed at, http://alexandriava.gov/uploadedFiles/tes/info/alexandria_water_quality_master_plan.pdf. Accessed on July 5, 2012.

At the time of preparation of the Draft EIS, a Federally listed threatened species, the sensitive joint-vetch plant (*Aeschynomene virginica*), was identified by USFWS as potentially occurring within the project study area. A field survey for the presence of the sensitive joint-vetch plant was completed on August 15, 2012, and no specimen was found within the project study area. On October 2, 2012, FTA submitted a project certification package containing the completed survey report for the sensitive joint-vetch and the USFWS online certification letter issued on September 12, 2012 stating that the agency concurred with the finding of "no effect" or "not likely to adversely affect" determinations for listed species and critical habitat based on the project. USFWS responded by email on October 4, 2012 acknowledging receipt of the project certification package (see **Appendix C**). USFWS no longer reports the species as potentially occurring within the project area (see Final EIS, Appendix H, USFWS Online Project Certification Letter, September 3, 2015, and USFWS Updated Official Species List, March 28, 2016).

In April 2015 USFWS listed the northern long-eared bat as Threatened under the Endangered Species Act (*Myotis septentrionalis*) and designated a buffer area within portions of its range where the bat has been affected by the white noise syndrome (WNS) disease. Although the City of Alexandria is within the current WNS

buffer area, USFWS has determined that suitable habitat for the species is not present within the City of Alexandria (July 15, 2015 discussion with USFWS Virginia Field Office). The current USFWS Official Species List (as of March 28, 2016) for the study does not include the northern long-eared bat. Prior to construction, the USFWS will be consulted to ensure that no changes to the status of listed species in the project study area have occurred.

Page 14, Section 3.1 Permanent Effects, Table 3-1 Species Conclusion

Table 3-1: Species Conclusion

Species / Resource Name	Analysis Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
~~Sensitive Joint-Vetch *(Aeschynomene virginica)*~~	~~Species Not Present~~	~~No Effect~~	~~See **Appendix C** for U.S. Fish & Wildlife Service Project Review Certification Package for complete results of field survey.~~
Bald Eagle *(Haliaeetus leucocephalus)*	Unlikely to disturb nesting bald eagles.	No Eagle act permit required.	The study area is not located within 660 feet of a bald eagle nest. See **Appendix C** for VAEagles Map nest locations. The study area is located outside USFWS-designated *Eagle Concentrated Areas* in Virginia.
Appalachian Springsnail *(Fontigens bottimeri)*	No suitable habitat present.	Not a federally listed or candidate species	VDGIF did not provide any comment on the presence of this species or its habitat in the study area in the agency response letter.
Wood Turtle *(Glyptemys insculpta)*	Potential habitat present	Not a federally listed or candidate species	VDGIF did not provide any comment on the presence of this species nor its habitat in the study area in the agency response letter.

Page 14, Section 3.1.2 Build Alternatives, Table 3-2 Permanent and temporary Wetland and Upland Habitat Impacts

Table 3-2: Permanent and Temporary Wetland and Upland Habitat Impacts (acres)

Habitat	Build Alternative B (acres)
Emergent Wetland*	0.96-1.08
Forested Wetland*	0.32-0.57
Wetland Total	**1.28-1.65**
Riverine Habitat	0.00
Treed Upland	1.30-1.37

*Includes wetlands delineated with both USACE and NPS methodologies. For information on delineated wetland areas, including the separately delineated wetland areas using the USACE and NPS methodologies, see the Potomac Yard Metrorail Station EIS, *Waters of the U.S. (Including Wetlands) Delineation Report*, February 2012. Numbers may not add to total due to rounding. Build Alternative B ranges based on design options with low –end acreage due to Design Option 1 and high-end acreage for Design Option 2.

Page 14, Section 3.1.2 Build Alternatives, Third Paragraph

None of the Build Alternatives are anticipated to impact federally listed or state listed threatened or endangered species based on available data. A field survey for the presence of the sensitive joint-vetch was completed on August 15, 2012 and no species were found within the project study area. No federally designated National Wildlife Refuge or Critical Habitat exists in the study area; therefore, no impact is anticipated to these resources. Additionally, VDCR did not identify any state designated Natural Communities in the study area and no impact is anticipated to these resources.

On October 2, 2012, FTA submitted a project certification package containing the completed survey report for the sensitive joint-vetch and the USFWS online certification letter issued on September 12, 2012 stating that the agency concurred with the finding of "no effect" or "not likely to adversely affect" determinations for listed species and critical habitat based on the project. USFWS responded by email on October 4, 2012 acknowledging receipt of the project certification package (see **Appendix C**). USFWS no longer reports the species as potentially occurring within the project area (see Final EIS, Appendix H, USFWS Online Project Certification Letter, September 3, 2015, and USFWS Updated Official Species List, March 28, 2016).

In April 2015 USFWS listed the northern long-eared bat as Threatened under the Endangered Species Act (*Myotis septentrionalis*) and designated a buffer area within portions of its range where the bat has been affected by the white noise syndrome (WNS) disease. Although the City of Alexandria is within the current WNS buffer area, USFWS has determined that suitable habitat for the species is not present within the City of Alexandria (July 15, 2015 discussion with USFWS Virginia Field Office). The current USFWS Official Species List (as of March 28, 2016) for the study does not include the northern long-eared bat. Prior to construction, the USFWS will be consulted to ensure that no changes to the status of listed species in the project study area have occurred.

16. SAFETY AND SECURITY TECHNICAL MEMORANDUM

Page 4, Section 2.0 Opening Year Conditions

As these safety and security measures are to remain in effect for the foreseeable future unless modified by WMATA, this memorandum has assumed that conditions in 2020 will be similar to the existing conditions.

18. CONSTRUCTION IMPACTS TECHNICAL MEMORANDUM

Page 7, Table 2-1 Potential Construction Impacts to the Greens Scenic Area Easement

Table 2-1: Potential Construction Impacts to the Greens Scenic Area Easement

Type of Impact	Build Alternative B (acres)
Temporary [1]	2.86-3.09

[1]Acreage excludes areas with permanent property impacts.

Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 2, and the high-end acreage is for Station Design Option 1. The finalized design would have impacts within this range.

Page 9, Section 2.6.2 Build Alternative B, 1st Paragraph

Under Build Alternative B, construction staging would remove much of the vegetation that currently provides a visual barrier between GWMP and the proposed location of the Metrorail station. For Build Alternative B, Construction Access Option 1 (no longer under consideration), the construction access point from the Parkway would interrupt the continuous visual line created by the roadway. For Construction Access Option 2 (advanced with the Preferred Alternative), no-access point from the Parkway would be provided. Construction activity would be located relatively close to GWMP with little visual barrier, noticeably altering the green appearance of the construction site. Construction equipment would be placed within viewsheds, including Potomac Greens Park, thereby introducing new features not previously present. A portion of Potomac Yard Park would be used as a staging area, impacting the viewshed by removing vegetation and park facilities. As a result, there would be substantial short-term adverse impacts.

Page 10, Section 2.7.2 Build Alternative B, 1st Paragraph

Construction activities associated with Build Alternative B would have direct and indirect effects on GWMP as per 36 CFR Part 800.5(a)(1-2). Specifically, construction activities associated with Build Alternative B may cause “damage to … part of the property” and/or change “of physical features within the property’s setting that contribute to its historic significance”. Construction of Build Alternative B would require the temporary use of 0.25 to 0.42 acre of GWMP. If avoidance of Sites 44AX0221 and 44AX0222 is not possible, construction of temporary access roads would likely cause direct adverse effects resulting from damage to all or part of the property, and indirect effects resulting from the potential transfer of land out of federal ownership. Other direct adverse effects to both resources would result from superficial soil disturbance and soil compression caused by the construction of temporary access roads. Design-based avoidance for effects to NRHP and VLR eligible archaeological resources would be developed in later project design phases based on further Phase II archaeological evaluations and in accordance with the ongoing Section 106 review process.

Page 11, Table 2-2 Temporary Construction Impacts to Parklands

Table 2-2: Temporary Construction Impacts to Parklands

Park	Opening Year Ownership	Total Area of Park (acres)	Temporary Impact (acres)	Area Affected (percent of total area)
Build Alternative B				
George Washington Memorial Parkway	NPS	37.09[(1)]	0.25-0.42	0.7-1.1%
Potomac Greens Park (Greens Scenic Area Easement)	City of Alexandria (NPS)	20.54 (15.27)[(2)]	4.10-4.33 (2.86-3.09)[(2)]	20.0-21.1% (18.7-20.2%)[(2)]
Rail Park	City of Alexandria	4.21	4.21	92.2%
Potomac Yard Park (South)	City of Alexandria	12.80[(1)]	1.78	13.1%
Potomac Yard Park (North)	City of Alexandria	3.39	0.48	18.4%

[1] Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 2, and the high-end acreage is for Station Design Option 1. The finalized design would have impacts within this range.

1. Area within the Study Area.
2. Area within parenthesis refers to the Greens Scenic Area easement.

Page 12, Section 2.8.2 Build Alternative B

George Washington Memorial Parkway

Construction of Build Alternative B would temporarily occupy 0.25 to 0.42 acre of GWMP. Construction staging would require two temporary driveways for construction vehicle access from the Parkway and removal of vegetation in these areas. All Parkway facilities would remain open for public use, and the roadway would remain open to general vehicular traffic in both directions of travel during the duration of construction, although temporary lane closure of a portion of one southbound lane in the vicinity of the construction access areas would be required. The areas of the park to be used are not currently used for recreational activities.

Potomac Greens Park

Construction of Build Alternative B would temporarily occupy 4.1 to 4.3 acres of the Potomac Greens Park, restricting use of the park and trails within the Potomac Greens Park during the duration of construction activities. Construction activities would also impact 2.86 to 3.09 acres of the Greens Scenic Area easement. Construction of the proposed station would remove the existing vegetation, including trees that provide a visual buffer to the CSXT tracks and Potomac Yard from the Potomac Greens Park. Once completed, the project would re-establish park facilities and vegetation. Build Alternative B could not proceed unless the easement is released by NPS, subject to an equal value exchange in property or interest in property per 16 U.S.C. 460l-22. To ensure safe conditions along the construction access route from the northern end of Potomac Greens neighborhood into Potomac Greens Park, the project proposes temporarily relocating or closing the park's playground and closing the boardwalk trail and northern end of the trail along Carpenter Road for the duration of construction.

Rail Park

Construction of Build Alternative B would temporarily occupy 4.21acres of the planned Rail Park, restricting use of the park during the duration of construction activities. Once completed, the project would re-establish Rail Park and install new landscaping.

Potomac Yard Park

Construction of Build Alternative B would temporarily occupy 2.7 acres of Potomac Yard Park (including 1.78 acres of the existing (South) portion and 0.48 acre of the planned (North) portion), restricting use of portions of the park by the public during the duration of adjacent construction activities. The trees and vegetation along the Metrorail tracks that provide a visual barrier to the Metrorail tracks would be removed as part of the construction staging process. The existing fence that lines the eastern portion of the Potomac Yard, existing vegetation along the fence, and the CSXT tracks would remain. Park facilities and vegetation would be impacted by the construction activities. Once completed, the project would re-establish the Potomac Yard Park and install new landscaping and park facilities.

Private Parklands and Recreational Facilities

In addition to impacts to the public parklands described above, construction activities would also impact private facilities owned and maintained by the Old Town Greens Homeowners Association for use by neighborhood residents. Construction access along the WMATA substation access road would require the temporary closure of the Old Town Greens Homeowners Association recreation facilities that include a playground and tennis courts for the duration of the project construction.

Page 16, Table 2-4 Temporary Impacts to USACE and NPS Regulated Wetlands

Table 2-4: Temporary Impacts to USACE and NPS Regulated Wetlands

Alternative	USACE Wetlands (acres)	NPS Wetlands (acres)	TOTAL
Build B	2.88 – 3.22	2.92 – 3.24	2.92 – 3.24

Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 2, and the high-end acreage is for Station Design Option 1. The finalized design would have impacts within this range. Total includes area of overlap.

Page 16, Section 2.12.1 Wetlands, Build Alternative B

Build Alternative B

Build Alternative B would temporarily impact 2.92 to 3.24 acres of the wetland areas delineated east of the Metrorail tracks, including approximately 0.57 acres of wetlands on NPS property, for staging and laydown areas. Build Alternative B would not impact delineated WOUS.

Page 16, Table 2-5 Temporary 100 Year and 500 Year Floodplain Impacts

Table 2-5: Temporary 100-Year and 500-Year Floodplain Impacts

Alternative	100-year (acres)	500-year (acres)
Build B	3.03 – 3.44	0.43 – 0.46

Note: Acreages shown above are based on the construction phasing as identified in this report. For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 2, and the high-end acreage is for Station Design Option 1. The finalized design would have impacts within this range.

Page 16, Section 2.12.3 Floodplains, Build Alternative B

Build Alternative B

Build Alternative B would temporarily impact 3.03 – 3.44 acres of the 100-year flood zone and 0.43 – 0.46 acres of the 500-year flood zone (outside of the 100-year flood zone) for construction staging and laydown areas east of the existing Metrorail tracks in the vicinity of the delineated wetland areas. The affected flood zone spans GWMP from the Potomac River. Sec. 6-300 (Floodplain District) of the City of Alexandria Zoning Ordinance prohibits the placement of trailers in 100-year flood zones for periods beyond 180 days.

Page 17, Table 2-6 Temporary Construction Impact to Resource Protection Area

Table 2-6: Temporary Construction Impact to Resource Protection Area

Alternative	Resource Protection Areas (acres)
Build B	5.35 – 5.76

Note: For ranges of impacts by the Preferred Alternative, the low-end acreage is for Station Design Option 2, and the high-end acreage is for Station Design Option 1. The finalized design would have impacts within this range.

Page 17, Section 2.12.4 Coastal Zone and Chesapeake Bay Preservation Areas

Build Alternative B

Build Alternative B would permanently impact 3.39 - 3.80 acres of RPA and would temporarily impact 5.35 – 5.76 acres of RPA around the proposed platform areas where wetlands have been delineated east of the Metrorail tracks.